

Course Outline of Record

1. Course Code: MATH-060
2.
 - a. Long Course Title: A Preparation for the Study of Algebra
 - b. Short Course Title: PRE-ALGEBRA
3.
 - a. Catalog Course Description:

This is a course in the elementary operations required for algebra. Topics include adding, subtracting, multiplying, and dividing whole numbers, decimals, and fractions with an introduction to the concept and uses of variables. Other topics include arithmetic with signed numbers, percents, ratios and proportions, the metric and American system of measurement, including the conversion of units, simplifying algebraic expressions and elementary geometry concepts such as perimeter, area, and volume. Equivalent to MATH-060D.
 - b. Class Schedule Course Description:

This course covers adding, subtracting, multiplying, and dividing whole numbers, signed numbers, fractions, and decimals with an introduction of variable expressions to prepare students for algebra.
 - c. Semester Cycle (if applicable): N/A
 - d. Name of Approved Program(s):
 - COD GE Pattern
4. Total Units: 3.00 Total Semester Hrs: 72.00
 Lecture Units: 2.5 Semester Lecture Hrs: 45.00
 Lab Units: 0.5 Semester Lab Hrs: 27.00
 Class Size Maximum: 35 Allow Audit: No
 Repeatability No Repeats Allowed
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:

Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)

 Prerequisite: MATH 070
 Advisory: ENG 061
 Advisory: RDG 061
6. Textbooks, Required Reading or Software: (List in APA or MLA format.)
 - a. Department of Math, College of the Redwoods (2013). *Prealgebra Textbook* Department of Math, College of the Redwoods.
 College Level: Yes
 Flesch-Kincaid reading level: N/A
 - b. Martin-Gay (2014). *Basic College Mathematics with Early Integers* (3rd/e). Pearson. ISBN: 9780321922342
 College Level: No
 Flesch-Kincaid reading level: 8.2
7. Entrance Skills: *Before entering the course students must be able:*
 - a. Read at an 8th grade level.
 - ENG 061 - Demonstrate the ability to think critically and express ideas using various patterns of development.
 - ENG 061 - Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.
 - RDG 061 - Read a variety of texts fluently.
 - b. Comprehend the concept of fraction as part of a whole.
 - MATH 070 - Comprehend the concept of a fraction as a part of a whole.
 - c. Demonstrate an ability to use the four basic operations of addition, subtraction, multiplication, and division on the integers and rational numbers.

MATH 060-A Preparation for the Study of Algebra

- MATH 070 - Compute using the four basic operations of addition, subtraction, multiplication, and division on the whole numbers, mixed numbers, integers, and fractions.

d. Comprehend and compute with natural number exponents.

- MATH 070 - Compute the value of expressions containing natural number exponents.

e. Reduce fractions to lowest terms and convert between improper fractions and mixed numbers.

- MATH 070 - Convert between improper fractions and mixed numbers.

8. Course Content and Scope:

Lecture:

1. A review of addition, subtraction, multiplication, and division of rational numbers in fraction form.
2. A review of natural number exponents and the order of operations.
3. A review of methods of finding the least common multiple using prime factorizations.
4. Decimal notation and place value, including comparing, ordering, estimating, and rounding decimals.
5. Addition, subtraction, multiplication and division of decimals.
6. Converting between decimals and fractions.
7. Ratios and the concept of proportions, including solving proportion problems.
8. Percents, converting between percents, fractions, and decimals, and solving percent problems using an equation or a proportion.
9. American and metric measurement units of length, volume, and weight, including conversion within and between systems.
10. Perimeter and area of basic geometric figures such as rectangles, squares, triangles, and circles and figures that can be broken down into two or more of these.
11. Square roots and the Pythagorean Theorem.
12. Volume of basic geometric solids such as a rectangular solid, cylinder, and cone.
13. The concept of a variable.
14. Translating statements into the language of algebra.
15. Simplifying algebraic expressions; the use of the commutative, associative and distributive properties and the order of operations.
16. Rules of natural number exponents involving variables.
17. Add, subtract, multiply and divide rational expressions whose numerator and denominator are monomial.
18. Evaluate algebraic expressions for rational values of variables.
19. Applications involving these concepts and skills.

Lab: *(if the "Lab Hours" is greater than zero this is required)*

1. Participate in discussion of lectured material through question and answer format to improve understanding of new concepts.
2. Participate in skill lab by working on either paper or web based worksheets to practice skills learned in lectures.
3. Receive academic assistant from instructor, ISAs and tutors on individual basis.

9. Course Student Learning Outcomes:

1. Demonstrate number sense, which is characterized by the ability to judge relative sizes of numbers, perform computations with numbers in different representations, and assess the reasonableness of results.

2.

Apply algebraic principles and deductive reasoning to perform computations with symbolic expressions.

3.

Use the information obtained in application problems to estimate a reasonable solution, identify and execute methods of solution that involve arithmetic and algebraic computations, and evaluate the reasonableness of results including the use of proportional reasoning.

MATH 060-A Preparation for the Study of Algebra

10. Course Objectives: *Upon completion of this course, students will be able to:*
- Compute using the four basic operations of addition, subtraction, multiplication, and division on the rational numbers in both fraction and decimal form.
 - Apply the basic operations to solve application problems that involve whole numbers, integers, and rational numbers.
 - Apply the order of operations to simplify expressions involving several operations using rational numbers.
 - Use rounding and estimation to solve problems involving rational numbers.
 - Employ decimal notation and place value to compare, order, and round numbers.
 - Use the concept of ratio to determine the solution to a proportion problem.
 - Apply methods of conversion between percents, decimals, and fractions.
 - Determine the solution to equations involving percents by deductive reasoning.
 - Recognize and convert between units of measurements in the American and metric systems.
 - Use unit measure appropriately in applications.
 - Use concepts and formulas from geometry.
 - Compute square roots and use the Pythagorean Theorem to solve simple right triangles.
 - Locate rational numbers on the real number line.
 - Understand the concept of a variable and how a variable can be used to represent an unknown quantity.
 - Distinguish between various subsets of the rational numbers including natural numbers, whole numbers, and integers.
 - Apply the commutative, associative, distributive, inverse and identity properties to simplify algebraic expressions.
 - Use the properties of natural number exponents to simplify algebraic expressions.
 - Evaluate an algebraic expression via substitution of rational numbers and determine if a given value is a solution to an algebraic equation
 - Explain the concepts of terms, factors, variable and coefficient.

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*

- Collaborative/Team
- Discussion
- Laboratory
- Lecture
- Participation
- Role Playing

12. Assignments: *(List samples of specific activities/assignments students are expected to complete both in and outside of class.)*

In Class Hours: 72.00

Outside Class Hours: 90.00

a. Out-of-class Assignments

1. Reading textbook and supplementary assignments.
2. Completing daily assigned homework and complete pretests.

b. In-class Assignments

1. Attending classroom lectures and taking notes.
2. Attend and participate in labs.
3. Participate in discussion groups to review, analyze, diagnose, and evaluate various methods of solution used on homework.
4. Complete examinations involving problems that require the application of studied principles and skills to new situations as well as problems that mimic those done on homework and in class..

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- Other
 - Performance on regularly assigned homework assignments, pretests in their discussion group.
 - Attendance in laboratory component of class for the required 27 hours per term.
 - Performance on examinations in their discussion group.
 - Performance on a comprehensive final examination.

MATH 060-A Preparation for the Study of Algebra

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

PO-GE C4.b - Language & Rationality (Communication & Analytical Thinking)

Gather, assess, and interpret relevant information.

Apply logical and critical thinking to solve problems; explain conclusions; and evaluate, support, or critique the thinking of others.

IO - Scientific Inquiry

Analyze quantitative and qualitative information to make decisions, judgments, and pose questions.

IO - Global Citizenship - Scientific & Technological Literacy

Utilize quantitative expression in a variety of contexts. These would include units of measurement, visual representations, and scales and distributions.

Synthesize, interpret, and infer, utilizing information, data, and experience to solve problems, innovate, and explore solutions.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
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17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: Required Material?

Material or Item

Cost Per Unit

Total Cost

19. Provide Reasons for the Substantial Modifications or New Course:

SLO Update

20. a. Cross-Listed Course (*Enter Course Code*): *N/A*

b. Replacement Course (*Enter original Course Code*): MATH-057

21. Grading Method (*choose one*): Letter Grade Only

22. MIS Course Data Elements

a. Course Control Number [CB00]: CCC000517136

b. T.O.P. Code [CB03]: 170100.00 - Mathematics, General

c. Credit Status [CB04]: C - Credit - Not Degree Applicable

d. Course Transfer Status [CB05]: C = Non-Transferable

e. Basic Skills Status [CB08]: 1B = Course is a basic skills course

f. Vocational Status [CB09]: Not Occupational

g. Course Classification [CB11]: Y - Credit Course

h. Special Class Status [CB13]: N - Not Special

i. Course CAN Code [CB14]: *N/A*

j. Course Prior to College Level [CB21]: Y = Not Applicable

k. Course Noncredit Category [CB22]: Y - Not Applicable

l. Funding Agency Category [CB23]: Y = Not Applicable

m. Program Status [CB24]: 2 = Stand-alone

Name of Approved Program (*if program-applicable*): COD

Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment

First Year: 1000

MATH 060-A Preparation for the Study of Algebra

Third Year: 1000

24. Resources - Faculty - Discipline and Other Qualifications:

a. Sufficient Faculty Resources: Yes

b. If No, list number of FTE needed to offer this course: *N/A*

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. (*Explain:*)

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Thang Le Origination Date 10/11/17