

I. CATALOG INFORMATIONA. Discipline: MATHEMATICSB. Subject Code and Number: MATH M09C. Course Title: Pre-Algebra

D. Credit Course units:

Units: 3Lecture Hours per week: 3Lab Hours per week : 0Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 52.5 - 52.5

Laboratory/Activity Hours:

Laboratory/Activity Hours 0 - 0**Total Combined Hours** in a 17.5 week term: 52.5 - 52.5

F. Non-Credit Course hours per week _____

G. May be taken a total of: 1 2 3 4 time(s) for creditH. Is the course co-designated (same as) another course: No Yes

If YES, designate course Subject Code & Number: _____

I. Course Description:

Prepares students for algebra. Emphasizes basic arithmetic operations on whole numbers, signed numbers, fractions, and decimals. Provides drills to reinforce operations. Focuses on problem solving and practical application such as percent, proportion, and measurement. Includes an introduction to basic algebra.

J. Entrance Skills

*Prerequisite: No Yes Course(s)

*Corequisite: No Yes Course(s)

Limitation on Enrollment: No Yes

Recommended Preparation: No Yes Course(s)

Competence with whole number arithmetic (addition, subtraction, multiplication, and division of whole numbers).

Other: No Yes

K. Other Catalog Information:

Does not apply to the Associate Degree. Completing Math M09 is the same as completing Math M09A, M09B, and M09C. Taking Math M09 and Math M09A, M09B, M09C receives a maximum credit of 3 units.

II. COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	write whole numbers in expanded form, the word name for a number, and the number for a word name.	Graded work and exams.
2	factor whole numbers into primes and apply the rules of divisibility.	Graded work and exams.
3	add, subtract, multiply, and divide whole numbers, including multi-digit numbers when carrying and borrowing may be necessary, using the properties of numbers.	Graded work and exams.
4	perform several arithmetic operations in the proper order and evaluate whole number exponents.	Graded work and exams.
5	round whole numbers and estimate the answer to a problem involving calculations with whole numbers; solve application problems using the basic math operations and check answers.	Graded work and exams.
6	add, subtract, multiply, or divide two or three signed numbers with the same or different signs; calculate with signed numbers using more than one operation.	Graded work and exams.
7	use fractions to represent data from applied situations.	Graded work and exams.
8	write a number as a product of prime numbers, reduce fractions, and determine if two fractions are equivalent.	Graded work and exams.
9	change between a mixed number and an improper fraction and reduce; multiply and divide mixed numbers and fractions that are proper or improper.	Graded work and exams.
10	find the least common denominator given two or three fractions and convert a fraction to an equivalent fraction with a given denominator; add and subtract mixed numbers and fractions with	Graded work and exams.

	or without a common denominator; solve applied problems that involve various types of fractions.	
11	change between fractional and decimal notation; compare decimals, order decimals, and round decimals to a specified decimal place; add, subtract, multiply, and divide decimals; solve applied problems using operations with decimals.	Graded work and exams.
12	use ratios and rates to compare quantities.	Graded work and exams.
13	write a proportion and solve proportions for the missing number; solve applied problems using proportions.	Graded work and exams.
14	change a percent, decimal, or a fraction to equivalent forms; translate a percentage problem into a proportion or an equation and solve; solve applied percentage problems including interest, commission, percent change, and discounts.	Graded work and exams.
15	identify units of measure in the American system and solve related problems.	Graded work and exams.
16	use prefixes in the metric system and convert metric units of length, mass, and volume; solve applied problems involving the metric system of measure.	Graded work and exams.
17	change numbers between standard notation and scientific notation; add and subtract numbers in scientific notation (optional).	Graded work and exams.
18	combine like terms containing a variable and apply the distributive property.	Graded work and exams.
19	solve equations using the addition or multiplication properties of equality or both; solve equations where the variable is on both sides of the equal sign and the distributive property must be used.	Graded work and exams.

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
15.00%	A. Whole Numbers 1. Addition, subtraction, multiplication and division whole numbers 2. Properties of numbers 3. Exponents and order of operation 4. Prime factorization of whole numbers and divisibility rules	1, 2, 3, 4, 5

	5. Rounding and estimation 6. Applied problems using whole numbers	
20.00%	B. Signed Numbers 1. Addition and subtraction of signed numbers 2. Multiplication and division of signed numbers 3. Order of operation with signed numbers	6
20.00%	C. Fractions 1. Simplifying fractions 2. Improper fractions and mixed numbers 3. Multiplication and division of fractions and mixed numbers 4. The least common denominator and building up fractions 5. Addition and subtraction of fractions and mixed numbers 6. Applied problems using fractions	7, 8, 9, 10
10.00%	D. Decimals 1. Decimal notation 2. Compare, order, and round decimals 3. Addition and subtraction of decimals 4. Multiplication and division of decimals 5. Converting fractions to decimals and the order of operation 6. Applied problems using decimals	11
15.00%	E. Ratio and Proportion 1. Ratios and rates 2. The concept of a proportion 3. Solving proportions 4. Applications of proportions	12, 13
10.00%	F. Percent 1. Changing between percents, decimals, and fractions 2. Solving percentage problems using an equation 3. Solving percentage problems using a proportion 4. Solving applied percentage problems	14
5.00%	G. Measurement 1. American units 2. Metric measurement: length, volume, and weight 3. Scientific notation	15, 16, 17
5.00%	H. Introduction to Algebra 1. Variables and like terms 2. The distributive property 3. Solve equations using the addition property 4. Solve equations using the multiplication or division property 5. Solve equations using two properties 6. Translating English to algebra	18, 19
	Enrichment topics related to the study of MATH M09 also may be presented by the instructor, if time allows.	

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	homework assignments which require expressing the meaning of a positive or negative integer answer to a problem, such as having or owing money, or receiving positive or negative points on a test.
2	graded assignments: in-class and/or homework assignments requiring a written explanation of an answer, such as the meaning of a percent as a computation of interest, a percentage of change, or a price discount, where answers are written with proper labels.

3	problem solving exams requiring written explanations of answers, such as the meaning of a fraction as a rate of change, the meaning of a decimal answer, or the meaning of a percent as a discount or a portion of a population.
---	--

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	assigned reading material from the textbook, such as reading about the differences between the European system of measurements and the metric system.
2	assigned homework problems selected from the textbook, such as an assignment computing ratios, with percents converted to decimals.
3	additional problem sets provided by the instructor, such as additional practice sets on adding, subtracting, multiplying and dividing fractions.
4	graded problem solving assignments, such as a set of graded problems adding, subtracting, multiplying or dividing numbers written in scientific notation.
5	group or individual projects, such as activities where students take and compare measurements in both the European system and the metric system.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	apply analytic techniques for solving mathematical and application problems, such as determining discounts, commission rates, interest on bank accounts and other operations using percentage and base.
2	compare and contrast methods of solution to mathematical problems, such as comparing ratios and rates.
3	interpret the meaning of numbers written in various different forms, such as fractions, decimals, mixed numbers, and numbers written in scientific notation.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

- Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)
- Lecture/Discussion
- Laboratory/Activity

Other (Specify)
 Introductory lectures to new concepts, review material from previous topics as related to the current topic, provide detailed step-by-step examples, provide practice problems to develop proper mathematical skills and techniques, provide student interaction for questions and answers, using projects and/or group work to enhance student understanding of the concepts, and discuss application problems.

Optional Field Trips

Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

- | | | |
|--|--|---|
| <input type="checkbox"/> Essay Exam | <input checked="" type="checkbox"/> Classroom Discussion | <input type="checkbox"/> Skill Demonstration |
| <input checked="" type="checkbox"/> Problem Solving Exam | <input type="checkbox"/> Reports/Papers/Journals | <input checked="" type="checkbox"/> Participation |
| <input checked="" type="checkbox"/> Objective Exams | <input checked="" type="checkbox"/> Projects | <input checked="" type="checkbox"/> Other (specify) |

Quizzes and/or graded work will be used to evaluate students for the critical thinking skills needed to solve math problems.

Problems must require students to demonstrate analytic skills and the step-by-step details required for the solution.

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Tussy, Alan S., and Diane Koenig. Prealgebra. 5th ed. Brooks Cole, 2014.

Lial, Margaret L., and Diane L. Hestwood. Prealgebra. 6th ed. Pearson, 2017.

Martin-Gay, Elayn. Basic College Mathematics with Early Integers. 3rd ed. Pearson, 2016.

VIII. STUDENT MATERIALS FEES

No Yes

IX. PARALLEL COURSES

College	Course Number	Course Title	Units
LA City College	MATH 112	Pre-Algebra	3
Ventura College	Math V10	Prealgebra	3
Oxnard College	Math R010	Pre-Algebra	3
Santa Monica College	Math 84	Pre-Algebra	3
San Diego City College	Math 38	Pre-Algebra and Study Skills	4

X. MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:

Master's in mathematics or applied mathematics OR Bachelor's in either of the above AND Master's in statistics, physics, or mathematics education

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

- Pass/No Pass only (no letter grade possible); or
 Letter grade (P/NP possible at student option)

2. Degree status:

- Either Associate Degree Applicable; or Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?

Yes: No: If YES, what section(s)?

- A1 - Natural Sciences - Biological Science
- A2 - Natural Sciences - Physical Science
- B1 - Social and Behavioral Sciences - American History/Institutions
- B2 - Social and Behavioral Sciences - Other Social Behavioral Science
- C1 - Humanities - Fine or Performing Arts
- C2 - Humanities - Other Humanities
- D1 - Language and Rationality - English Composition
- D2 - Language and Rationality - Communication and Analytical Thinking
- E1 - Health/Physical Education
- E2 - PE or Dance
- F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: No:

2. If YES do you recommend this course for inclusion on the CSU General Education list?

Yes: No: If YES, which area(s)?

- | | | | | | | |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
| A1 <input type="checkbox"/> | A2 <input type="checkbox"/> | A3 <input type="checkbox"/> | B1 <input type="checkbox"/> | B2 <input type="checkbox"/> | B3 <input type="checkbox"/> | B4 <input type="checkbox"/> |
| C1 <input type="checkbox"/> | C2 <input type="checkbox"/> | D1 <input type="checkbox"/> | D2 <input type="checkbox"/> | D3 <input type="checkbox"/> | D4 <input type="checkbox"/> | D5 <input type="checkbox"/> |
| D6 <input type="checkbox"/> | D7 <input type="checkbox"/> | D8 <input type="checkbox"/> | D9 <input type="checkbox"/> | D10 <input type="checkbox"/> | E <input type="checkbox"/> | |

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: No:

2. If YES do you recommend this course for the Intersegmental General

Education Transfer Curriculum (IGETC)? Yes: No:

IGETC Area 1: English Communication

- English Composition
- Critical Thinking-English Composition
- Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

- Mathematical Concepts

IGETC Area 3: Arts and Humanities

- Arts
- Humanities

IGETC Area 4: Social and Behavioral Sciences

- Anthropology and Archaeology
- Economics
- Ethnic Studies
- Gender Studies
- Geography
- History
- Interdisciplinary, Social & Behavioral Sciences
- Political Science, Government & Legal Institutions
- Psychology
- Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- Physical Science Lab or Physical Science Lab only (non-sequence)
- Physical Science Lecture only (non-sequence)
- Biological Science
- Physical Science Courses
- Physical Science Lab or Biological Science Lab Only (non-sequence)
- Biological Science Courses
- Biological Science Lab course
- First Science course in a Special sequence
- Second Science course in a Special Sequence
- Laboratory Activity
- Physical Sciences

IGETC Area 6: Language other than English

- Languages other than English (UC Requirement Only)
-

U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:

Use of textbooks on reserve. Research, using the Library's print and online resources, to look up current interest rates for computations of percentages; use science books to identify items that are very large or very small to express measurements in scientific notation, or identify other uses of basic mathematics in the sciences, engineering, social sciences, or in daily life.

B. Are the currently held library resources sufficient to support the course assignment?

YES: NO:

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

XIV. WORKPLACE PREPARATION

MATH M09: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

1. Mode of Delivery

Online (course will be delivered 100% online)

Online with onsite examinations (100% of the instruction will occur online, but examinations and an orientation will be scheduled onsite)

Online/Hybrid (a percentage of instruction will be held online and the remaining percentage of instruction will be held onsite)

Lab activities will be conducted onsite

Televideo (Examinations and an orientation will be held onsite)

Teleconference

Other

2. Need/Justification

Improve General Student Access.

3. Describe how instructors teaching this course will ensure regular, effective contact with and among students.

Using the Course Management System (CMS) adopted by VCCCD, instructors may engage students using the following communication activities:

Provide students with an opportunity to ask questions of fellow students and the instructor using the "discussion forum" tool provided by the

CMS.

Contact students via email within the CMS, by campus email, and/or MyVCCCD.

Meet with students for study sessions and online office hours using an online communication tool like Wimba or Elluminate, where instructors and students may speak with one another using VoIP or phone, and instructors may write the problems for all to see using an online whiteboard. These sessions may be archived so that students who were not able to attend may watch the session at a later time.

Use the "announcement" tool to remind students of important assignments and due dates.

Provide students with an online schedule of class events using the "calendar" tool in the online CMS.

4. Describe how instructors teaching this course will involve students in active learning.

Instructors may involve students in active learning in the following activities:

Students may view video lessons and/or text-based lessons for each learning objective (created by an instructor or by a publishing company).

Students may complete homework on paper and/or using an interactive online homework system provided by a publishing company.

Students may test their knowledge with interactive online quizzes provided by a publishing company.

Students may interact with the instructor and classmates using an online discussion forum to ask questions.

Students may attend online study sessions using a communication tool like Wimba or Elluminate.

Students may submit questions to the instructor by email.

Instructor may create student groups or group activities using the CMS.

5. Explain how instructors teaching this course will provide multiple methods of content representation.
6. Describe how instructors teaching this course will evaluate student performance.

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

MATH M09: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

MATH M09: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

MATH M09: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: MATHEMATICS

Discipline Code and Number: MATH M09

Course Revision Category: Outline Update

Course Proposed By:

Originating Faculty Vahe Khachadorian 10/16/2017

Faculty Peer: Rena Petrello 11/01/2017

Curriculum Rep: Daniel Rubinstein 10/18/2017

Department Chair: Phillip Abramoff 10/19/2017

Division Dean: Mary Rees 10/16/2017

Approved By:

Curriculum Chair: Jerry Mansfield 04/23/2018

Executive Vice President: _____

Articulation Officer: Jodi Dickey 04/03/2018

Librarian: Mary LaBarge 04/03/2018

Implementation Term and Year: Fall 2018

Approval Dates:

Approved by Moorpark College Curriculum Committee: 04/17/2018

Approved by Board of Trustees (if applicable): _____

Approved by State (if applicable): 04/25/2018