

I. CATALOG INFORMATIONA. Discipline: MATHEMATICSB. Subject Code and Number: MATH M905SC. Course Title: Support for College Algebra

D. Credit Course units:

Units: _____

Lecture Hours per week: 0 _____Lab Hours per week : 2 _____Variable Units : No _____

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 0 - 0 _____

Laboratory/Activity Hours:

Laboratory/Activity Hours 35 - 35 _____**Total Combined Hours** in a 17.5 week term: 35 - 35 _____

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:

Provides review for topics necessary for success in College Algebra, including linear equations and inequalities, graphing, factoring, and rational expressions. Covers systems of linear equations, rational functions, rational exponents and radicals, complex numbers, quadratic equations, graphs of parabolas, functions, composition and inverse functions, exponential and logarithmic functions.

J. Entrance Skills

*Prerequisite: No Yes Course(s)
_____*Corequisite: No Yes Course(s)
MATH M05Limitation on Enrollment: No Yes
_____Recommended Preparation: No Yes Course(s)
_____Other: No Yes

K. Other Catalog Information:

Requires concurrent enrollment in MATH M05.

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	graph linear equations and test whether two lines are parallel, perpendicular, or neither.	Graded assignments
2	write the equation of a line in point-slope form, slope-intercept form, and standard form.	Graded assignments
3	factor polynomials including the sum and difference of cubes.	Graded assignments
4	evaluate polynomial functions and solve polynomial equations by factoring and using the zero factor property.	Graded assignments
5	simplify rational expressions, perform operations with rational expressions, simplify complex fractions, and determine the domain of a simple rational function.	Graded assignments
6	divide by a polynomial using long division.	Graded assignments
7	solve equations containing rational expressions and applications.	Graded assignments
8	simplify rational exponent expressions using the properties of exponents and convert to radical notation.	Graded assignments
9	put radical expressions into simplest radical form, perform operations with radicals, solve equations containing radical expressions, and determine domain of a simple radical function.	Graded assignments
10	add, subtract, multiply and divide complex numbers.	Graded assignments
11	solve quadratic equations by each of the following methods where applicable: factoring, the square root method, completing the square, and the quadratic formula.	Graded assignments
12	solve equations that are in quadratic form and solve quadratic equations involving radicals and substitution.	Graded assignments
13	solve non-linear inequalities in one variable.	Graded assignments
14	describe the relationship between a function and its inverse	Graded assignments

	geometrically and algebraically.	
15	identify, describe, and simplify ratios and rates.	Graded assignment
16	use geometric formulas to solve problems involving perimeter, circumference, and area.	Graded assignment
17	set up a proportion and/or a percent equation to solve problems, including applications.	Graded assignment

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
10.00%	A. Equations, Inequalities, and Problem Solving 1. Linear equations and their applications in one variable 2. Formulas and literal equations	2, 16
15.00%	F. Quadratic Equations and Functions 1. Solving quadratic equations by the square root method, completing the square and the quadratic formula 2. Solving equations that are quadratic in form 3. Non-linear inequalities 4. Rational inequalities (*optional)	11, 12, 14
15.00%	B. Graphs and Functions 1. Introduction to linear and non-linear functions 2. Review of graphs of linear equations and slope 3. Equations of linear functions	1, 13
20.00%	E. Radicals, Rational Exponents, and Complex Numbers 1. Radicals and radical functions 2. Radical exponents 3. Simplifying, adding, subtracting, and multiplying radical expressions 4. Dividing radical expressions and rationalizing denominators 5. Radical equations 6. Complex numbers	8, 9, 10
20.00%	C. Integer Exponents, Polynomials, and Polynomial Functions 1. Review of integer exponents, exponent rule, and conversions in scientific notation 2. Review of polynomials and operations on polynomials 3. Review of factoring 4. Factoring sums and differences of two cubes 5. Solving polynomial equations by factoring 6. Evaluate polynomial functions	3, 4, 11
20.00%	D. Rational Expressions 1. Simplifying, adding, subtracting, multiplying, and dividing rational expressions 2. Simplifying complex fractions 3. Dividing polynomials using long division 4. Solving rational equations and applications	5, 6, 7, 8, 15, 17

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	homework problems where answers require a written explanation of the solution, such as solving a system of linear equations and identifying if the system is consistent or inconsistent, dependent or independent.
2	graded assignments: in-class and/or homework assignments, such as factoring a trinomial whose leading coefficient is not equal to 1 requiring complete solutions using both written English and symbolic mathematical language.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	additional problem sets provided by the instructor, such as practice exercises on simplifying expressions.
2	graded assignments: in-class and/or homework assignments requiring complete solutions using both written English and symbolic mathematical language.
3	group or individual projects which require student collaboration including written mathematical answers on paper or on the board.

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 finding the inverse of a one-to-one function.
2	compare and contrast methods of solution to mathematical problems, such as solving quadratic equations by more than one method.
3	describe and apply the algorithmic steps for obtaining the solution to a mathematical problem, such as solving logarithmic equations.

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

Graded assignments, homework assignments, or group activities 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

Young, Cynthia Y. College Algebra. 4th ed. Wiley, 2017.

Dugopolski, Mark. College Algebra. 6th ed. Pearson, 2015.

Sullivan, Michael. College Algebra. 10th ed. Pearson, 2016.

Blitzer, Robert F. College Algebra: An Early Functions Approach. 4th ed. Pearson, 2018.

VIII. STUDENT MATERIALS FEES

- No Yes

IX. PARALLEL COURSES

<i>College</i>	<i>Course Number</i>	<i>Course Title</i>	<i>Units</i>
CSU Fullerton	MATH 115W	College Algebra Workshop	1
Oxnard College	MATH R098V	Algebra Support for MATH R115 (College Algebra)	2
Crafton Hills College	MATH 902	College Algebra Support	2
CSU Monterey Bay	MATH 30	Support Course for MATH 130 (Precalculus)	1

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 OR the equivalent.

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. Use of computer stations available in the open access lab for any online assignments. Enrichment sources through the Library print and online resources for application problems, such as time, rate, motion

examples.

- 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

Requisite Justification for MATH M05

- A. Sequential course within a discipline.
- B. Standard Prerequisite or Corequisite required by universities.
- C. Corequisite is linked to companion lecture course.
- D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

XIV. WORKPLACE PREPARATION

MATH M905S: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

MATH M905S: Not Applicable

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

MATH M905S: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

MATH M905S: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

Please check all that apply:

1. This is a course in which the **content differs** each time the course is offered. For the course in which the content may change significantly after a period of time, there must be a mechanism for ensuring that when a student wants to re-enroll, the content is different from the last time the student took the course. Indicate in the course description the

circumstances that would permit repetition.

2. This is an **activity course** where the student meets course objectives by repeating a similar primary educational activity and the student gains an expanded educational experience each time the course is repeated for the following reasons:

- Skills or proficiencies are enhanced by supervised repetition and practice within class periods; or
- Active participatory experience in individual study for group assignments is the basic means by which learning objectives are obtained.

NOTE: Foreign language courses, for-credit ESL courses, and non-degree-applicable basic skills courses are NOT considered activity courses and therefore cannot be repeated.

3. This is a **physical education activity course**.

NOTE: Activity courses which involve the same primary educational activity (e.g., golf) or different levels of the same activity (e.g., beginning and intermediate golf), must combine all enrollments across all of these similar courses for purposes of the four enrollment repeatability limitation. In other words, a student may not enroll in beginning and intermediate golf four times each, but may enroll in these golf courses for a total of four times.

4. This is a **visual or performing arts courses** in music, fine arts, theater or dance.

NOTE: An exception is made for activity courses in the visual and performing arts in the same area (e.g., piano) that are a part of a transfer sequence (documentation maybe required). Students may repeat each level of each course (e.g., Piano 1, 2 and 3) up to three times for a total of four enrollments in each course.

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: MATHEMATICS

Discipline Code and Number: MATH M905S

Course Revision Category: New Course

Course Proposed By:

Originating Faculty Phillip Abramoff 11/14/2018

Faculty Peer: Rena Petrello 11/14/2018

Curriculum Rep: Daniel Rubinstein 11/15/2018

Department Chair: Phillip Abramoff 11/14/2018

Division Dean: Lisa Putnam 11/15/2018

Approved By:

Curriculum Chair: Jerry Mansfield 12/17/2018

Executive Vice President: _____

Articulation Officer: Letrisha Mai 12/05/2018

Librarian: Mary LaBarge 12/05/2018

Implementation Term and Year: Fall 2019

Approval Dates:

Approved by Moorpark College Curriculum Committee: 12/11/2018

Approved by Board of Trustees (if applicable): 02/19/2019

Approved by State (if applicable): 03/21/2019