MATHCE206 - College Preparation Essential Mathematics

General Information

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Proposal Start:	Spring 2019
Distance Education Approved:	Yes
TOP Code:	4930.62
TOP Code Name:	Secondary Education (Grades 9-12) and G.E.D.
CIP Code:	53.0201
CIP Code Name:	High School Equivalence Certificate Program
SAM Code:	E = Non-Occupational
Course Control Number:	CCC000596209
Curriculum Committee Approval Date:	04/16/2018
Board of Trustees Approval Date:	06/11/2018
External Review Approval Date:	07/09/2018
Course Description:	This course includes operations of whole numbers, fractions, decimals, integers and working with percentages, ratio, proportion, measurement, mensuration geometry, basic algebra and applied word problems.Open Entry/Open Exit.
Submission Rationale:	Mandatory Revision

Faculty Minimum Qualification Requirements

Master Discipline Preferred:	No value
Alternate Master Discipline Preferred:	No value

Bachelors or Associates Discipline Preferred:	No value
Additional Bachelors or Associates Discipline:	No value

Course Development Options

Course Basic Skill Status	Grading Criteria	Grade Options
Course is a basic skills course.	99	Letter Grade methods Other: Closed book: 90-100% = A 80-89% = B 70-79% = C 60-69% = D Below 60% = F SP = Satisfactory Progress To be awarded “SP”, a student must have a minimum of one (1) successfully-completed assignment, with a grade equivalent to a “C” or above, recorded on his/her grade card during the last 30 days of the term. NP= No Pass A student who receives “NP” has been in attendance but does not have any successfully completed assignments, with a grade equivalent to a “C” or above, recorded on his/her grade card during the last 30 days of the term.

☐ Allow Students to Gain Credit by Exam/Challenge

Rationale For Credit By Exam/Challenge	Retake Policy Description	☐ Allow Students To Audit Course
No value	CE - Continuing Education	

Course Prior to College Level

Three levels below transfer.

Associated Programs

Associated Program	Award Type
No value	No value

Transferability & Gen. Ed. Options

Request for Transferability	Transferability Status
Not transferable	Not transferable

Noncredit

Summary

Minimum Units	-	**Total Course In-Class (Contact) Hours**	144	**Total Student Learning Hours**	144
Minimum Units	-	**Total Course Out-of-Class Hours**	-	**Faculty Load**	-

Detail

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	9	-
Lab Hours	-	-
Activity Hours	-	-

Course Student Hours

Course Duration (Weeks)	16
Hours per unit divisor	48
Course In-Class (Contact) Hours	
Lecture	144
Lab	-
Activity	-
Total	144
Course Out-of-Class Hours	
Lecture	-
Lab	-
Activity	-
Total	-

Noncredit - Weekly Specialty Hours

Units and Hours

Summary

Minimum Units	-	**Total Course In-Class (Contact) Hours**	-	**Total Student Learning Hours**	-
Minimum Units	-	**Total Course Out-of-Class Hours**	-	**Faculty Load**	-

Detail

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	-	-
Lab Hours	-	-
Activity Hours	-	-

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	-
Lab	-
Activity	-
Total	-
Course Out-of-Class Hours	
Lecture	-
Lab	-
Activity	-
Total	-

Units and Hours - Weekly Specialty Hours

Requisites

No value

Entrance Skills

Skill	Rational (Optional)
No value	No value

Limitations on Enrollment

Specifications

Methods of Instruction	Rationale (Optional)
Distance Education	
Individualized Instruction	
Instructor-Prepared Materials	
Manipulatives (Math specific)	
Mediated Learning	

Outside-of-Class Assignments Only

- Complete worksheets
- Complete textbook and workbook assignments
- Take unit tests and quizzes

Methods of Evaluation	Rationale (Optional)
Computer Assignments	
Departmental Final Exam	

Exams/Tests

Final Exam

Group Projects

Quizzes

Worksheets

Class Participation

Class Work

Competency-based written and practical tests which demonstrate the students' ability to apply skills and concepts learned to minimum standards established by the instructor

Homework

Lab Activities/Exercises

Standard instrument measuring student subjective opinion

Textbook Rationale No value

Textbooks

Author	Title	Publisher	Date	ISBN
O'Reily, M	Working with Numbers: Refresher Computation, Algebra, Geometry	Steck-Vaughn Company	2003 ($25)	ISBN:07398354

Learning Outcomes and Objectives

Course Objectives

- ✔ Identify number concepts including place value and rounding
- ✔ Identify properties of real numbers
- ✔ Calculate basic exponents
- ✔ Solve word problems involving whole numbers
- ✔ Identify prime factors and apply divisibility rules
- ✔ Evaluate numerical expressions using the order of operations
- ✔ Represent fractions and mixed numbers
- ✔ Convert between improper fractions and mixed numbers

- ✔ Identify types of fractions and reciprocals
- ✔ Compare fractions
- ✔ Perform arithmetic operations with fractions and mixed numbers
- ✔ Solve word problems involving fractions
- ✔ Read, writing and round decimals
- ✔ Perform arithmetic operations with decimals
- ✔ Solve word problems involving decimals
- ✔ Convert fractions to decimals and decimals to fractions
- ✔ Order fractions and decimals
- ✔ Represent ratios in multiple ways
- ✔ Solve proportion involving decimals or fractions
- ✔ Find rates and unit rates that correspond to a contextual problem
- ✔ Use unit rates to solve proportional problems
- ✔ Verify that two figures are similar by finding scale factors
- ✔ Use scale factors to determine missing sides in similar figures
- ✔ Use similarity to solve proportional application problems
- ✔ Perform fraction, decimal, percent conversion
- ✔ Solve three main types of percent problems
- ✔ Solve percent application word problems involving percents such as sales tax, commission, discounts, percent increase or decrease
- ✔ Identify basic vocabulary in geometry such as point, line, segment, ray, angle, etc.
- ✔ Recognize common plane geometric shape
- ✔ Find the perimeter and area for common shape polygons
- ✔ Calculate the circumference and area of a circle
- ✔ Find surface area of common prism
- ✔ Solve area, perimeter, and volume application word problems
- ✔ Apply the Pythagorean Theorem to find a missing side of a right triangle or solve application problems
- ✔ Identify terms used in measurement in both metric and U.S customary systems
- ✔ Distinguish between 1, 2, and 3 dimensional measures
- ✔ Convert U.S customary unit measurements
- ✔ Convert metric unit measurements
- ✔ Convert between U.S. and metric systems
- ✔ Solve applications of unit measurements
- ✔ Identify different types of numbers with the real number system
- ✔ Represent application problems using integers
- ✔ Perform basic operations with integers
- ✔ Apply order of operations with integers
- ✔ Solve word problems involving integers
- ✔ Intepret different meaning of variables
- ✔ Evaluate algebraic expressions
- ✔ Identify properties of algebra: commutative, associative, identity, inverse and distributive
- ✔ Solve multi-step equations
- ✔ Identify functions
- ✔ Graph ordered pairs, solutions and linear equations
- ✔ Find the slope of a line
- ✔ Solve inequalities

CSLOs

Evaluate basic arithmetic expressions with whole numbers, fractions, and decimals by applying the order of operations. Expected SLO Performance:

Perform operations with percentage, ratio, proportions and mensuration geometry. Expected SLO Performance:

Course Outline

Course Outline

Lecture		
Approx. Hours	**Content**	**Objective**
19.00	Whole numbers • Place value and rounding • Arithmetic operations • Basic exponents • Properties of real numbers • Divisibility and factoring into primes • Order of operations	• Identify number concepts including place value and rounding • Identify properties of real numbers • Calculate basic exponents • Solve word problems involving whole numbers • Identify prime factors and apply divisibility rules • Evaluate numerical expressions using the order of operations
18.00	Fractions • Definition • Arithmetic operations • Mixed numbers	• Represent fractions and mixed numbers • Convert between improper fractions and mixed numbers • Identify types of fractions and reciprocals • Compare fractions • Perform arithmetic operations with fractions and mixed numbers • Solve word problems involving fractions
15.00	Decimals • Definition • Arithmetic operations • Fraction and decimal conversion	• Read, writing and round decimals • Perform arithmetic operations with decimals • Solve word problems involving decimals • Convert fractions to decimals and decimals to fractions • Order fractions and decimals
10.00	Ratio and Proportion • Definition of rate and ratio • Rates • Ratios • Problem solving	• Represent ratios in multiple ways • Solve proportion involving decimals or fractions • Find rates and unit rates that correspond to a contextual problem • Use unit rates to solve proportional problems • Verify that two figures are similar by finding scale factors • Use scale factors to determine missing sides in similar figures • Use similarity to solve proportional application problems

14.00	Percents • Meaning of percents • Percent, decimal, and fraction equivalents • Three main types of percent problems • Applications of percents	• Perform fraction, decimal, percent conversion • Solve three main types of percent problems • Solve percent application word problems involving percents such as sales tax, commission, discounts, percent increase or decrease
14.00	Geometry • Basic definitions • Common shape polygons • Perimeters, areas and volumes • Circumference and area of a circle • Surface area • Word problems • Pythagorean Theorem	• Identify basic vocabulary in geometry such as point, line, segment, ray, angle, etc. • Recognize common plane geometric shape • Find the perimeter and area for common shape polygons • Calculate the circumference and area of a circle • Find surface area of common prism • Solve area, perimeter, and volume application word problems • Apply the Pythagorean Theorem to find a missing side of a right triangle or solve application problems
10.00	Measurements • U.S. customary unit system: length, weight, and capacity • Metric system: length, weight, and capacity • Applications of unit measurements • Metric /U.S. customary conversions	• Identify terms used in measurement in both metric and U.S customary systems • Distinguish between 1, 2, and 3 dimensional measures • Convert U.S customary unit measurements • Convert metric unit measurements • Convert between U.S. and metric systems • Solve applications of unit measurements
20.00	Integers • Definition of the real number system • Basic operations with integers • Word problems • Order of operations	• Identify different types of numbers with the real number system • Represent application problems using integers • Perform basic operations with integers • Apply order of operations with integers • Solve word problems involving integers
12.00	Algebra: Expressions and Equations • Basic vocabulary • Introduction to variables • Algebraic expressions • Properties of Algebra • Multi-step equations	• Intepret different meaning of variables • Evaluate algebraic expressions • Identify properties of algebra: commutative, associative, identity, inverse and distributive • Solve multi-step equations
12.00	Algebra: Functions, Graphs, and Inequalities	• Identify functions

	• Functions • Ordered pairs, solutions and linear equations • Slope • Inequalities	• Graph ordered pairs, solutions and linear equations • Find the slope of a line • Solve inequalities

Distance Education Addendum

1. Is the method of delivery 100% online or hybrid? Please select one.

100% Online

2. Title 5 (55204) states that "Any portion of a course conducted through distance education includes regular effective contact between instructor and students, through group or individual meetings, orientation and review sessions, supplemental seminar or study sessions, field trips, library workshops, telephone contact, correspondence, voice mail, e-mail, or other activities." Describe/give examples of the methods of instruction which will be used in the hybrid/online course. Please include how the methods of instruction used in the traditional classroom will be modified and/or replaced in the hybrid/online classroom. How will these methods ensure that you will maintain regular effective contact with the students?

This online class includes a combination of on-campus and face-to-face meetings in which instructors provide personal contact, offer content explanations, and proctor quizzes and tests. The textbook and lab assignments will be delivered through an online Learning Management System (LMS), such as Canvas. Instructors may also deliver online content to replicate ongoing traditional classroom interaction (i.e. instructor-student, student-student, student-instructor) in multiple formats (e.g. a combination of discussion boards, blogs, wikis; instructor-developed web lectures, converted PowerPoint presentations, digital video clips; graphics, digital animations; online reference resources; chats, e-mail, webinars; publisher-prepared online materials including CD/DVD support materials and textbook supplements; instructor blog/website; online libraries; and OER resources).

This distance education course will include regular effective contact. Instructors will regularly initiate interaction with students to determine that they are accessing and comprehending course material and that they are participating regularly in the activities in the course. This distance education course is considered a "virtual equivalent" of a face-to-face course. Therefore, the frequency of the contact will be at least the same as would be established in a regular, face-to-face course. At the very least, the number of instructor contact hours per week that would be available for face-to-face students will also be available, in asynchronous and/or synchronous mode, with students in the distance education format. Contact shall be distributed in a manner that will ensure that regular contact is maintained, given the nature of asynchronous instructional methodologies, over the course of a week and should occur as often as is appropriate for the course. A response time of 24-48 hours, Monday through Friday, is desirable but may vary based on course requirements and extenuating circumstances (such as holidays and weekends).

Instructors will maintain regular effective contact related to the course through a LMS such as Canvas; holding group and individual meetings; coordinating orientations, review sessions, supplemental seminars, or study lessons; and clearly establishing contact policies via text, e-mail, or other media options (e.g. video conferencing). Instructors may use announcements, discussion boards, wikis, blogs, or similar technology available at the time the

course is offered. Instructors trained in the teaching of all High School subjects will design this interaction to be effective by being relevant to recent or upcoming content, to current events, or to information that students can use to relate the course content to other experiences. Using a wide variety of strategies will allow for student differences in contacting the instructor and/or other students. They will insure the lines of communication remain open between the instructor and the students. Instructors will provide regular feedback on assignments, which may be held during a 30-minute virtual meeting with each individual student. Every student will ask questions and have those questions addressed through a class discussion boards.

3. Describe how you will promote and monitor effective student-to-student contact.

Every class meeting will include student group activities in order to foster interaction in the target language and to develop oral communication skills in a small-group setting. Instructors will use discussion boards to facilitate class discussion, along with the possibility of using blogs, wikis, journals, etc., allowing student-to-student posts, which will provide further opportunities for students to interact in a virtual environment. Instructors will view these interactions regularly making constructive comments to assure the effectiveness of student-to-student contact.

4. Describe and give examples of how student learning will be evaluated.

Student learning will be evaluated by a combination of formative and summative assessments (e.g. homework assignments, quizzes, tests, online activities, and evaluations consistent with the Course Outline of Record). Students are expected to conduct two hours of outside study time for every one lecture hour as stated in the course outline of record. Opportunities for student self-assessment will be provided at the end of each learning module, as formative assessments. All final examinations will be given on-campus and proctored by the instructor or a designee. Typically, assignments will be submitted or completed online, but instructors may choose to have students submit them in-person during one of the required on-campus meetings.

5. List any special texts, equipment, or supplies needed for this course or sections of this course being offered through distance education.

Access to an up-to-date computer with Office Applications (MS Word, PowerPoint, Excel, OR Pages, Keynote, Numbers, OR Open Office equivalents) webcam, speakers and microphone, and reliable high-speed internet connection that is capable of supporting streaming video. Internet speed of 4Mbps download and 512kbps upload or faster is recommended.
Students should have access to at least two Internet browsers (e.g., Mozilla Firefox, Safari, Google Chrome). Instructors might require the use of a particular browser. Students should have a "back-up" computer/plan in the event that their main computer experiences technological difficulties.

6. Describe the college resources that will be required by you and your students (facilities, technology, student support services) for this course.

Facilities: A mediated classroom for the required meetings on campus, including exams.
Technology: Computers, tablets, the Internet, and a LMS (such as Canvas).
Student Support Services: Students are not required to use any college resources, but should have access, as needed, to available online library services, counseling, tutoring, DSPS, and computer lab/learning center.

7. Section 55200 of title 5 states "In addition, instruction provided as distance education is subject to the requirements that may be imposed by the Americans with Disabilities Act (42 U.S.C. §12100 et seq.) and section 508 of the Rehabilitation Act of 1973, as amended, (29 U.S.C. §794d)." What technologies will you be using for instruction (video, flash, images, etc)? How will you ensure that instruction using these technologies is accessible to students with disabilities?

Online classes at Santiago Canyon College are designed to be welcoming, accessible, and usable by everyone, and have a variety of learning styles, have disabilities, or are new to online learning. The instructor of this online class will work with DSPS to ensure that all course materials are ADA Accessible before being offered to the public, such as documents being correctly formatted, images having alternate text descriptions, audio is transcribed, video

is closed captioned, and third-party materials, such as publisher materials, websites, or shared student materials, are evaluated for accessibility and inaccessible elements are appropriately accommodated when needed.