Mathematical Sciences Division Curriculum Committee
Agenda
November 4, 2014

1. Course Review
2. Summer Math Academy
3. Math 210 C-ID Issues
4. Computer Science Proposed Course

EL CAMINO COLLEGE
Mathematical Sciences
Division Curriculum Committee
November 4, 2014

Present: Sue Bickford, Carl Broderick, Anna Hockman, Ken Key, Milan Georgevich, Bob Horvath, Gayathri Manikandan, Ambika Silva, Jackie Sims

COURSE REVIEW

Courses Approved

The following course reviews have been approved by the DCC: Math 165, 170, 180, 220.

Math 99

The committee reviewed the Math 99 course outline. Some members questioned the vague wording of the conditions of enrollment being two math courses and wondered if they had to be taken at El Camino and whether or not they should be college-level courses. It was noted that the independent study sections are not active during registration and a student has to have instructor approval and supervision for the project in order to receive credit.

It was moved and seconded to approve the course outline with a change to 54 hours per unit. The course outline was approved with one abstention.

Math 100

Ms. Hockman reviewed the changes to the course outline. She noted that although students could spend as much time in the Study Center as needed, the college could receive apportionment for 72 hours per semester per student.

The committee unanimously approved the revised course outline.

SUMMER MATH ACADEMY

The summer math academy course outlines need to be approved as soon as possible. Any comments should be mailed to Ms. Hockman.

MATH 210

This current course doesn't satisfy either the math and computer science C-ID. The course committee will review the course outline in the spring semester to decide which course to align with.

COMPUTER SCIENCE PROPOSED COURSE

The computer science faculty want to develop a course on Python. They've polled students and found interest for the course.

AH/as

From: Hockman, Anna
Sent: Tuesday, November 05, 2014 11:45 AM
To: DCC Members
Cc: Sims, Jacquelyn

In our meeting yesterday there was much discussion about Math 99 and suggestions for changing the Course Outline of Record. I contacted Quajuana Chapman about these issues. Here is her response:

From: Chapman, Quajuana
Sent: Wednesday, November 05, 2014 10:49 AM
To: Hockman, Anna
Cc: Sims, Jacquelyn; mlipe@elcamimo.edu
Subject: RE: Math 99

Hi Anna,

All other course requirements for independent study are in the board policy. I do not have a copy in front of me. There is a policy committee that handles recommendation for changes and. There is also an AP for independent study. Please do not make changes to the 99 CORs.

Thanks,

Q

From: Hockman, Anna
Sent: Tuesday, November 04, 2014 7:44 PM
To: Chapman, Quajuana
Cc: Sims, Jacquelyn
Subject: Math 99

We met with the DCC for Math today and had a few questions about Math 99:

1) Conditions of Enrollment says: two courses in Mathematics with a minimum grade of B in each --- do these classes need to be at El Camino? Do these classes need to be transfer level? For example, would a student who has completed Math 12 and Math 23 be able to take this class, if they earned a B or better in each?

2) We would like to change the wording of the second part of the conditions of enrollment, which currently states:
and acknowledgment by the instructor with whom the student will work to read:
and approval of the project by the instructor with whom the student will work.
Is it ok for me to go ahead and make that change to the COR?
3) It still lists 60 hours per unit, can I change it to 54 hours/unit? Should that also be reflected in the Outline of Subject Matter?

I hesitate to make changes since I'm not sure where this is in the process, but I can take care of some of these issues.

Thanks so much!

Anna

EL CAMINO COLLEGE

COURSE OUTLINE OF RECORD

I. COURSE DESCRIPTION

Course Title and Number: Mathematics 12 Academy

Descriptive Title: Preparation for College Mathematics and the Math Placement Exam

Discipline: Mathematics

Division:

Course Length: ☐Full Term ☒Other (specify): 48 hours (over three weeks)

Hours Lecture: 48 Hours Laboratory: Course Units: 0

Grading Method: ☐Letter ☐Credit/No Credit ☐Both ☒No Grade

Course Type: ☐Credit, Degree Applicable ☐Credit, Not Degree Applicable ☒Non-Credit

Transfer CSU: ☐Yes Effective Date ☒No

Transfer UC: ☐Yes Approval Date ☐Pending ☒No

Conditions of Enrollment:
Specify Prerequisite Corequisite, Recommended Preparation, Enrollment Limitation or None.

Intended for students who have placed into Mathematics 12

Catalog Description:
This course is designed for students who have placed into Math 12. It provides students with information, skills, and resources necessary for success in College Mathematics and assists students in developing number and operation sense, using whole numbers, fractions, and integers. Students will become aware of their responsibilities as math students, develop an understanding of learning styles, develop skills in managing time to achieve goals, and learn how to create a support network using college resources and services.

Note: Students enrolled in this course are required to participate in individual and group activities.

II. COURSE OBJECTIVES

List the major objectives of the course. These must be stated in behaviorally measurable terms.

1. Master the multiplication table through the twelve.

2. Perform basic operations (addition, subtraction, multiplication, division and exponentiation) on whole numbers, rational numbers, and integers using the order of operations where necessary.
3. Order a given set of whole numbers, rational numbers, and integers.
4. Use rounding techniques to estimate results of operations on whole numbers, rational numbers, and integers.
5. Analyze the personal qualities and skills associated with success in a diverse college setting.
6. Examine individual learning styles and personality types and determine how they apply to student success in college.

7. Identify strategies for effective time management and develop a time management plan.
8. Identify and access available resources and support services.

III. OUTLINE OF SUBJECT MATTER

The topics should be detailed enough to enable an instructor to determine the major areas that should be covered and so that the course may have consistency from instructor to instructor and semester to semester.

Approximate Time in Hours (n)	Major Topics

Whole numbers (7)
- a. Operations on whole numbers (2)
- b. Order of operations (2)
- c. Rounding and estimation (1)
- d. Applications and solving(2)

Integers (8)
- a. Operations on integers (3)
- b. Order of operations (1)
- c. Ordering integers (2)
- d. Rounding and estimation (1)
- e. Applications and solving (1)

Rational numbers (19)
- a. Understanding and simplifying fractions (3)
- b. Operations on rational numbers (11)
- c. Ordering rational numbers (1)
- d. Order of operations (1)
- e. Rounding and estimation (1)
- f. Applications and solving (2)

Decimal numbers/ Ration and Proportion (8)
- a. Operations on decimal numbers (2)
- b. Order of operations (1)
- c. Rounding and estimation (1)
- d. Ratio and Proportion (2)
- e. Applications and solving (2)

Orientation to College Mathematics (6)
- a. Personal Responsibility
- b. Listening and note taking skills

c. Self-management: schedules, planners, notebook organization
d. Test taking strategies
e. Introduction to college culture
f. Learning styles

TOTAL HOURS (48)

IV . METHODS OF EVALUATION

A. CREDIT, DEGREE APPLICABLE AND CREDIT, NOT DEGREE APPLICABLE COURSES

Check the PRIMARY method of evaluation for this course.

- ☐ Substantial writing assignments
- ☐ Problem solving demonstrations (computational or non-computational)
- ☐ Skills demonstrations

A minimum of one response in the categories 1, 2, or 3 below, as applicable, is required. However, you may check all that apply.

1. Indicate the types of writing assignments used as primary or secondary methods of evaluation for this course.
   - ☐ Essay exams
   - ☐ Written homework
   - ☐ Term or other papers
   - ☐ Reading reports
   - ☐ Laboratory reports
   - ☐ Other (specify)

2. Indicate the types of problem-solving demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Exams
   - ☐ Laboratory reports
   - ☐ Quizzes
   - ☐ Homework problems
   - ☐ Fieldwork
   - ☐ Other (specify)

3. Indicate the types of skill demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Class performance
   - ☐ Performance exams
   - ☐ Fieldwork
   - ☐ Other (specify)

4. If objective exams are also used, check all that apply.
   - ☐ Multiple choice
   - ☐ Completion
   - ☐ Matching items
   - ☐ True/false
   - ☐ Other (specify)

B. NON-CREDIT COURSE

Indicate the methods of evaluation that will be used to determine that stated objectives have been met.

Daily quizzes, homework, in class activities, self-assessment assignments, and the math placement test

V. COURSEWORK

A. TYPICAL ASSIGNMENT

Provide an example of a typical assignment. This assignment must correspond to the PRIMARY method of evaluation indicated in Section IV, Methods of Evaluation. That is, it must be a writing assignment or, if more appropriate, an assignment involving problem solving or skill demonstration.

Examine the notes you took during the math instructor's lecture on order of operations and rewrite them using one of the three methods introduced by the human development instructor.

B. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS

Cite two specific assignments that demonstrate college-level critical thinking. (Required for degree applicable courses only.)

1. N/A

2. N/A

C. WORK OUTSIDE OF CLASS

Two hours work outside of class are required for each hour of lecture or equivalent. Each student in this course will be required to participate in the following work outside of class time. Check all that apply.

- ☒ Study
- ☐ Answer questions
- ☐ Skill practice
- ☐ Required reading
- ☐ Problem solving activity
- ☐ Written work (such as essay/composition/report/analysis/research)
- ☐ Journal (done on a continuing basis throughout the semester)
- ☐ Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting)
- ☐ Course is lab only - minimum required hours satisfied by scheduled lab time
- ☒ Other (specify) List some of these

VI. INSTRUCTIONAL METHODOLOGY

A. Check all planned instructional activities that apply:

- ☒ Lecture
- ☐ Lab
- ☒ Discussion
- ☐ Multimedia presentations
- ☒ Group Activities
- ☐ Role play/simulation
- ☒ Guest Speakers
- ☐ Field trips

☒Demonstration ☐Other (specify)

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VII. TEXTS AND MATERIALS

If multiple selection is offered, only representative texts need be listed. An up-to-date list of required and recommended materials is maintained in the division office.

A. REQUIRED TEXTS (title, author, publisher, year)

None

B. REQUIRED SUPPLEMENTARY READINGS

None

C. OTHER REQUIRED MATERIALS

Three ring notebook, dividers, index cards, highlighter

VIII. CONDITIONS OF ENROLLMENT

If this course has a Prerequisite or Corequisite, complete section A. If this course has an Enrollment Limitation complete section B.

A. PREREQUISITE AND/OR COREQUISITE

1. Indicate if this course has a prerequisite or corequisite or both.
   ☐Prerequisite ☐Corequisite ☐Both

2. Indicate Type. Check all that apply.

   ☐Sequential ☐Computational/Communication Skills
   ☐Health and Safety ☐Non-Course
   ☐Standard (If this is a Standard prerequisite or corequisite, attach CCC Form D.)

3. Entrance Skills/Knowledge
   List the required skills and/or knowledge without which a student would be highly unlikely to receive a grade of A, B, C, or Credit (or for Health and Safety, would endanger self or others) in this course.

B. ENROLLMENT LIMITATION

1. Indicate the category which describes the Enrollment Limitation for this course.
   - ☐ Band/Orchestra
   - ☐ Theater
   - ☐ Speech
   - ☐ Chorus
   - ☐ Journalism
   - ☐ Dance
   - ☐ Intercollegiate Athletics
   - ☐ Honors Course
   - ☐ Blocks of Courses
   - ☒ Other (specify)

     Entering students placed in Math 12
2. List Degree and/or Certificate requirements that are met by this course.

3. List all El Camino College courses that also satisfy the requirements listed above in Section B.2.

Originator:_____ Submittal Date:_____

BOARD APPROVAL DATE:_____

Reviewed and/or Revised by:

_____ Date: _____

_____ Date: _____

_____ Date: _____

REQUIRED SIGNATURES FOR NON-CREDIT COURSE

College Curriculum Committee Chair

_____

Vice-President - Academic Affairs

_____

CCC Form 1, 5/2006

EL CAMINO COLLEGE

COURSE OUTLINE OF RECORD

I. COURSE DESCRIPTION

Course Title and Number: Mathematics 23 & 40 Academy

Descriptive Title: Preparation for College Mathematics and the Math Placement Exam

Discipline: Mathematics

Division:

Course Length: ☐Full Term ☒Other (specify): 48 hours (over three weeks)

Hours Lecture: 48 Hours Laboratory: Course Units: 0

Grading Method: ☐Letter ☐Credit/No Credit ☐Both ☒No Grade

Course Type: ☐Credit, Degree Applicable ☐Credit, Not Degree Applicable ☒Non-Credit

Transfer CSU: ☐Yes Effective Date ☒No

Transfer UC: ☐Yes Approval Date ☐Pending ☒No

Conditions of Enrollment:
Specify Prerequisite Corequisite, Recommended Preparation, Enrollment Limitation or None.

Intended for students who have placed into Mathematics 23 and 40

Catalog Description:
This course is designed for students who have placed into Math 23 and 40. This course includes developing number sense and operation sense, in order to formulate and solve algebraic equations with integers, fractions, and percents. Algebraic principles are applied to problems from a variety of fields. In the addition to the study of real number solutions and applications of linear equations, quadratic equations, linear inequalities, and systems of linear equations. Other topics include coordinate graphing of linear equations, factoring techniques, and simplification of rational and radical expressions. Students will become aware of their responsibilities as math students, develop an understanding of learning styles, develop skills in managing time to achieve goals, and learn how to create a support network using college resources and services.

Note: Students enrolled in this course are required to participate in individual and group activities.

II. COURSE OBJECTIVES

List the major objectives of the course. These must be stated in behaviorally measurable terms.

9. Master the multiplication table through the twelves.
10. Perform basic operations (addition, subtraction, multiplication, division and exponentiation) on whole numbers, rational numbers, decimals, percentage, and integers using the order of operations where necessary.
11. Solve linear equations and linear inequality.
12. Graphing linear equations.
13. Solve rational expression and equations.
14. Find the perimeters, area, volume of various geometrical shapes and use in applications.
15. Analyze the personal qualities and skills associated with success in a diverse college setting.
16. Examine individual learning styles and personality types and determine how they apply to student success in college.
17. Identify strategies for effective time management and develop a time management plan.
18. Identify and access available resources and support services.

IV. OUTLINE OF SUBJECT MATTER

The topics should be detailed enough to enable an instructor to determine the major areas that should be covered and so that the course may have consistency from instructor to instructor and semester to semester.

Approximate Time in Hours	Major Topics

1) Order of Operations (5)
    a. whole numbers & Integers
    b. Fractions
    c. Decimals
    d. Percentage
2) Evaluating Expressions (1)
3) Translation and solve word problems (4)
    a. Perimeter
    b. Area
    c. Volume
4) Linear equations and inequality (4)
    a. Solve
    b. graph
5) Rule of exponents (2)
6) Operation of polynomials (3)
    a. Additions, subtractions, multiplications, divisions
7) System of equations (3)
    a. Substitution
    b. Elimination
8) Factor (4)
    a. GCF

b. Grouping
c. Trinomials

9) Quadratic Equations (4)
a. Solve
b. Application

10) Rational expression & Equations (4)
a. Simplify
b. Solve

11) Orientation to College Mathematics (6)
g. Personal Responsibility
h. Listening and note taking skills
i. Self-management: schedules, planners, notebook organization
j. Test taking strategies
k. Introduction to college culture Learning styles

TOTAL HOURS (48)

IV . METHODS OF EVALUATION

A. CREDIT, DEGREE APPLICABLE AND CREDIT, NOT DEGREE APPLICABLE COURSES

Check the PRIMARY method of evaluation for this course.

- ☐ Substantial writing assignments
- ☐ Problem solving demonstrations (computational or non-computational)
- ☐ Skills demonstrations

A minimum of one response in the categories 1, 2, or 3 below, as applicable, is required. However, you may check all that apply.

2. Indicate the types of writing assignments used as primary or secondary methods of evaluation for this course.
   - ☐ Essay exams
   - ☐ Written homework
   - ☐ Term or other papers
   - ☐ Reading reports
   - ☐ Laboratory reports
   - ☐ Other (specify)

5. Indicate the types of problem-solving demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Exams
   - ☐ Laboratory reports
   - ☐ Quizzes
   - ☐ Homework problems
   - ☐ Fieldwork
   - ☐ Other (specify)

6. Indicate the types of skill demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Class performance
   - ☐ Performance exams
   - ☐ Fieldwork
   - ☐ Other (specify)

7. If objective exams are also used, check all that apply.
   - ☐ Multiple choice
   - ☐ Completion
   - ☐ Matching items
   - ☐ True/false
   - ☐ Other (specify)

B. NON-CREDIT COURSE

Indicate the methods of evaluation that will be used to determine that stated objectives have been met.

Daily quizzes, homework, in class activities, self-assessment assignments, and the math placement test

V. COURSEWORK

A. TYPICAL ASSIGNMENT

Provide an example of a typical assignment. This assignment must correspond to the PRIMARY method of evaluation indicated in Section IV, Methods of Evaluation. That is, it must be a writing assignment or, if more appropriate, an assignment involving problem solving or skill demonstration.

Examine the notes you took during the math instructor's lecture on order of operations and rewrite them using one of the three methods introduced by the human development instructor.

B. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS

Cite two specific assignments that demonstrate college-level critical thinking. (Required for degree applicable courses only.)

1. N/A

2. N/A

C. WORK OUTSIDE OF CLASS

Two hours work outside of class are required for each hour of lecture or equivalent. Each student in this course will be required to participate in the following work outside of class time. Check all that apply.

- ☒ Study
- ☐ Answer questions
- ☐ Skill practice
- ☐ Required reading
- ☐ Problem solving activity
- ☐ Written work (such as essay/composition/report/analysis/research)
- ☐ Journal (done on a continuing basis throughout the semester)
- ☐ Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting)
- ☐ Course is lab only - minimum required hours satisfied by scheduled lab time
- ☒ Other (specify) List some of these

VI. INSTRUCTIONAL METHODOLOGY

B. Check all planned instructional activities that apply:

☒ Lecture	☒ Group Activities
☐ Lab	☐ Role play/simulation
☒ Discussion	☒ Guest Speakers
☐ Multimedia presentations	☐ Field trips

☒Demonstration ☐Other (specify)

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VIII. TEXTS AND MATERIALS

If multiple selection is offered, only representative texts need be listed. An up-to-date list of required and recommended materials is maintained in the division office.

A. REQUIRED TEXTS (title, author, publisher, year)

None

B. REQUIRED SUPPLEMENTARY READINGS

None

C. OTHER REQUIRED MATERIALS

Three ring notebook, dividers, index cards, highlighter

IX. CONDITIONS OF ENROLLMENT

If this course has a Prerequisite or Corequisite, complete section A. If this course has an Enrollment Limitation complete section B.

B. PREREQUISITE AND/OR COREQUISITE

1. Indicate if this course has a prerequisite or corequisite or both.
   ☐Prerequisite ☐Corequisite ☐Both

2. Indicate Type. Check all that apply.

   ☐Sequential ☐Computational/Communication Skills
   ☐Health and Safety ☐Non-Course
   ☐Standard (If this is a Standard prerequisite or corequisite, attach CCC Form D.)

3. Entrance Skills/Knowledge
   List the required skills and/or knowledge without which a student would be highly unlikely to receive a grade of A, B, C, or Credit (or for Health and Safety, would endanger self or others) in this course.

B. ENROLLMENT LIMITATION

1. Indicate the category which describes the Enrollment Limitation for this course.
   ☐Band/Orchestra
   ☐Theater
   ☐Speech
   ☐Chorus

☐ Journalism
☐ Dance
☐ Intercollegiate Athletics
☐ Honors Course
☐ Blocks of Courses
☒ Other (specify)
Entering students placed in Math 23 or Math 40

2. List Degree and/or Certificate requirements that are met by this course.

3. List all El Camino College courses that also satisfy the requirements listed above in Section B.2.

Originator:___ Submittal Date:_____

BOARD APPROVAL DATE:_____

Reviewed and/or Revised by:

_____ Date: _____

_____ Date: _____

_____ Date: _____

REQUIRED SIGNATURES FOR NON-CREDIT COURSE

College Curriculum Committee Chair

_____

Vice-President - Academic Affairs

_____

EL CAMINO COLLEGE

COURSE OUTLINE OF RECORD

I. COURSE DESCRIPTION

Course Title and Number: Mathematics 73 Academy

Descriptive Title: Preparation for College Mathematics and the Math Placement Exam

Discipline: Mathematics

Division:

Course Length: ☐Full Term ☒Other (specify): 48 hours (over three weeks)

Hours Lecture: 48 Hours Laboratory: Course Units: 0

Grading Method: ☐Letter ☐Credit/No Credit ☐Both ☒No Grade

Course Type: ☐Credit, Degree Applicable ☐Credit, Not Degree Applicable ☒Non-Credit

Transfer CSU: ☐Yes Effective Date ☒No

Transfer UC: ☐Yes Approval Date ☐Pending ☒No

Conditions of Enrollment:
Specify Prerequisite Corequisite, Recommended Preparation, Enrollment Limitation or None.

Intended for students who have placed into Mathematics 73

Catalog Description:

This course is designed for students who have placed into Math 73. In the context of studying basic functions and their graphs, students strengthen and expand their algebra skills. Functions studied include linear, quadratic, polynomial, rational, and radical functions, as well as the absolute value function. Particular emphasis is placed on the operations on functions, solving equations and inequalities, as well as using functions to model real life situations. Other topics include solving systems of equations and applications. Students will become aware of their responsibilities as math students, develop an understanding of learning styles, develop skills in managing time to achieve goals, and learn how to create a support network using college resources and services.

Note: Students enrolled in this course are required to participate in individual and group activities.

II. COURSE OBJECTIVES

List the major objectives of the course. These must be stated in behaviorally measurable terms.

19. Operation and manipulative algebraic expressions, including expressions with rational and negative exponents, complex numbers, and logarithms.
20. Solve problem involving a variety of function types, including linear, quadratic, polynomial, rational, exponential, and logarithm functions and linear inequality.
21. Using numerical, symbolic and graphical methods, model application problems, solving them and interpret the results in the context of the problem.
22. Introduction to probability, graphs, and statistics.
23. Analyze the personal qualities and skills associated with success in a diverse college setting.
24. Examine individual learning styles and personality types and determine how they apply to student success in college.
25. Identify strategies for effective time management and develop a time management plan.
26. Identify and access available resources and support services.

V. OUTLINE OF SUBJECT MATTER

The topics should be detailed enough to enable an instructor to determine the major areas that should be covered and so that the course may have consistency from instructor to instructor and semester to semester.

Approximate Time in Hours	Major Topics

1) Order of Operations (5)
    a. whole numbers & Integers
    b. Fractions
    c. Decimals
    d. Percentage
2) Evaluating Expressions (1)
3) Translation and solve word problems (4)
    a. Perimeter
    b. Area
    c. Volume
4) Linear equations and inequality (4)
    a. Solve
    b. graph
5) Rule of exponents (2)
6) Operation of polynomials (3)
    a. Additions, subtractions, multiplications, divisions
7) System of equations (3)
    a. Substitution
    b. Elimination
8) Factor (4)
    a. GCF
    b. Grouping
    c. Trinomials

9) Quadratic Equations (4)
   a. Solve
   b. Application
10) Rational expression & Equations (4)
   a. Simplify
   b. Solve
11) Orientation to College Mathematics (6)
   l. Personal Responsibility
   m. Introduction to MESA/STEM program.
   n. Self-management: schedules, planners, notebook organization
   o. Test taking strategies
   p. Introduction to college culture Learning styles

TOTAL HOURS (48)

IV . METHODS OF EVALUATION

A. CREDIT, DEGREE APPLICABLE AND CREDIT, NOT DEGREE APPLICABLE COURSES

Check the PRIMARY method of evaluation for this course.

- ☐ Substantial writing assignments
- ☐ Problem solving demonstrations (computational or non-computational)
- ☐ Skills demonstrations

A minimum of one response in the categories 1, 2, or 3 below, as applicable, is required. However, you may check all that apply.

3. Indicate the types of writing assignments used as primary or secondary methods of evaluation for this course.
   - ☐ Essay exams
   - ☐ Written homework
   - ☐ Term or other papers
   - ☐ Reading reports
   - ☐ Laboratory reports
   - ☐ Other (specify)

8. Indicate the types of problem-solving demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Exams
   - ☐ Laboratory reports
   - ☐ Quizzes
   - ☐ Homework problems
   - ☐ Fieldwork
   - ☐ Other (specify)

9. Indicate the types of skill demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Class performance
   - ☐ Performance exams
   - ☐ Fieldwork
   - ☐ Other (specify)

10. If objective exams are also used, check all that apply.
   - ☐ Multiple choice
   - ☐ Completion
   - ☐ Matching items
   - ☐ True/false
   - ☐ Other (specify)

B. NON-CREDIT COURSE

Indicate the methods of evaluation that will be used to determine that stated objectives have been met.

Daily quizzes, homework, in class activities, self-assessment assignments, and the math placement test

V. COURSEWORK

A. TYPICAL ASSIGNMENT

Provide an example of a typical assignment. This assignment must correspond to the PRIMARY method of evaluation indicated in Section IV, Methods of Evaluation. That is, it must be a writing assignment or, if more appropriate, an assignment involving problem solving or skill demonstration.

Examine the notes you took during the math instructor's lecture on order of operations and rewrite them using one of the three methods introduced by the human development instructor.

B. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS

Cite two specific assignments that demonstrate college-level critical thinking. (Required for degree applicable courses only.)

1. N/A

2. N/A

C. WORK OUTSIDE OF CLASS

Two hours work outside of class are required for each hour of lecture or equivalent. Each student in this course will be required to participate in the following work outside of class time. Check all that apply.

- ☒ Study
- ☐ Answer questions
- ☐ Skill practice
- ☐ Required reading
- ☐ Problem solving activity
- ☐ Written work (such as essay/composition/report/analysis/research)
- ☐ Journal (done on a continuing basis throughout the semester)
- ☐ Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting)
- ☐ Course is lab only - minimum required hours satisfied by scheduled lab time
- ☒ Other (specify) List some of these

VI. INSTRUCTIONAL METHODOLOGY

C. Check all planned instructional activities that apply:

- ☒ Lecture
- ☐ Lab
- ☒ Discussion
- ☐ Multimedia presentations
- ☒ Demonstration
- ☒ Group Activities
- ☐ Role play/simulation
- ☒ Guest Speakers
- ☐ Field trips
- ☐ Other (specify)

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

IX. TEXTS AND MATERIALS

If multiple selection is offered, only representative texts need be listed. An up-to-date list of required and recommended materials is maintained in the division office.

A. REQUIRED TEXTS (title, author, publisher, year)

None

B. REQUIRED SUPPLEMENTARY READINGS

None

C. OTHER REQUIRED MATERIALS

Three ring notebook, dividers, index cards, highlighter

X. CONDITIONS OF ENROLLMENT

If this course has a Prerequisite or Corequisite, complete section A. If this course has an Enrollment Limitation complete section B.

C. PREREQUISITE AND/OR COREQUISITE

1. Indicate if this course has a prerequisite or corequisite or both.
   ☐Prerequisite ☐Corequisite ☐Both

2. Indicate Type. Check all that apply.

   ☐Sequential ☐Computational/Communication Skills
   ☐Health and Safety ☐Non-Course
   ☐Standard (If this is a Standard prerequisite or corequisite, attach CCC Form D.)

3. Entrance Skills/Knowledge
   List the required skills and/or knowledge without which a student would be highly unlikely to receive a grade of A, B, C, or Credit (or for Health and Safety, would endanger self or others) in this course.

B. ENROLLMENT LIMITATION

1. Indicate the category which describes the Enrollment Limitation for this course.
   ☐Band/Orchestra
   ☐Theater
   ☐Speech
   ☐Chorus
   ☐Journalism

☐ Dance
☐ Intercollegiate Athletics
☐ Honors Course
☐ Blocks of Courses
☒ Other (specify)
Entering students placed in Math 73

2. List Degree and/or Certificate requirements that are met by this course.

3. List all El Camino College courses that also satisfy the requirements listed above in Section B.2.

Originator:_____ Submittal Date:_____

BOARD APPROVAL DATE:_____

Reviewed and/or Revised by:

_____ Date: _____

_____ Date: _____

_____ Date: _____

REQUIRED SIGNATURES FOR NON-CREDIT COURSE

College Curriculum Committee Chair

_____

Vice-President - Academic Affairs

_____

EL CAMINO COLLEGE

COURSE OUTLINE OF RECORD

I. COURSE DESCRIPTION

Course Title and Number: Mathematics 80 Academy

Descriptive Title: Preparation for College Mathematics and the Math Placement Exam

Discipline: Mathematics

Division:

Course Length: ☐Full Term ☒Other (specify): 48 hours (over three weeks)

Hours Lecture: 48 Hours Laboratory: _____ Course Units: 0

Grading Method: ☐Letter ☐Credit/No Credit ☐Both ☒No Grade

Course Type: ☐Credit, Degree Applicable ☐Credit, Not Degree Applicable ☒Non-Credit

Transfer CSU: ☐Yes Effective Date _____ ☒No

Transfer UC: ☐Yes Approval Date _____ ☐Pending ☒No

Conditions of Enrollment:
Specify Prerequisite Corequisite, Recommended Preparation, Enrollment Limitation or None.

Intended for students who have placed into Mathematics 80

Catalog Description:

This course is designed for students who have placed into Math 73. In the context of studying a large library of basic functions and their graphs, students strengthen and expand their algebra skills. This library includes linear, quadratic, polynomial, rational, radical, exponential, and logarithmic functions, as well as inverse functions and the absolute value function. Topics also includes a study of trigonometric functions, trigonometric identities, and solving trigonometric functions and applications. Particular emphasis is placed on the operations on functions, as well as solving equations and inequalities. Other topics include solving systems of equations, operations on complex numbers, and applications. Students will become aware of their responsibilities as math students, develop an understanding of learning styles, develop skills in managing time to achieve goals, and learn how to create a support network using college resources and services.

Note: Students enrolled in this course are required to participate in individual and group activities.

II. COURSE OBJECTIVES

List the major objectives of the course. These must be stated in behaviorally measurable terms.

27. Operation and manipulative algebraic expressions, including expressions with rational and negative exponents, complex numbers, and logarithms.
28. Solve problem involving a variety of function types, including linear, quadratic, polynomial, rational, exponential, and logarithm functions and linear inequality.
29. Using numerical, symbolic and graphical methods, model application problems, solving them and interpret the results in the context of the problem.
30. Perform trigonometry functions, unit circle, simplifying trigonometric expressions, and solve trigonometry equations.
31. Analyze the personal qualities and skills associated with success in a diverse college setting.
32. Examine individual learning styles and personality types and determine how they apply to student success in college.
33. Identify strategies for effective time management and develop a time management plan.
34. Identify and access available resources and support services.

VI. OUTLINE OF SUBJECT MATTER

The topics should be detailed enough to enable an instructor to determine the major areas that should be covered and so that the course may have consistency from instructor to instructor and semester to semester.

Approximate Time in Hours	Major Topics

1) Evaluating Expressions (2)
2) Translation and solve word problems (4)
    a. Perimeter
    b. Area
    c. Volume
3) Linear equations and inequality (6)
    a. Solve
    b. graph
6) System of equations (4)
    a. Substitution
    b. Elimination
7) Quadratic Equations (5)
    a. Solve
        1) Factoring
        2) Quadratic formula
    b. Application
8) Rational expression & Equations (8)
    a. Simplify
    b. Solve
9) Functions (3)
    a. Composite
    b. Inverse

10) Trigonometry (10)
   a. Unit Circle
   b. Simplifying trigonometry expression
   c. Unit Circle
   d. Law of Sines and Cosines
   e. Solving trigonometry equations.

11) Orientation to College Mathematics (6)
   q. Personal Responsibility
   r. Introduction to MESA/STEM program.
   s. Self-management: schedules, planners, notebook organization
   t. Test taking strategies
   u. Introduction to college culture Learning styles

TOTAL HOURS (48)

IV . METHODS OF EVALUATION

A. CREDIT, DEGREE APPLICABLE AND CREDIT, NOT DEGREE APPLICABLE COURSES

Check the PRIMARY method of evaluation for this course.

- ☐ Substantial writing assignments
- ☐ Problem solving demonstrations (computational or non-computational)
- ☐ Skills demonstrations

A minimum of one response in the categories 1, 2, or 3 below, as applicable, is required. However, you may check all that apply.

4. Indicate the types of writing assignments used as primary or secondary methods of evaluation for this course.
   - ☐ Essay exams
   - ☐ Written homework
   - ☐ Term or other papers
   - ☐ Reading reports
   - ☐ Laboratory reports
   - ☐ Other (specify)

11. Indicate the types of problem-solving demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Exams
   - ☐ Laboratory reports
   - ☐ Quizzes
   - ☐ Homework problems
   - ☐ Fieldwork
   - ☐ Other (specify)

12. Indicate the types of skill demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Class performance
   - ☐ Performance exams
   - ☐ Fieldwork
   - ☐ Other (specify)

13. If objective exams are also used, check all that apply.
   - ☐ Multiple choice
   - ☐ Completion
   - ☐ Matching items
   - ☐ True/false
   - ☐ Other (specify)

B. NON-CREDIT COURSE

Indicate the methods of evaluation that will be used to determine that stated objectives have been met.

Daily quizzes, homework, in class activities, self-assessment assignments, and the math placement test

V. COURSEWORK

A. TYPICAL ASSIGNMENT

Provide an example of a typical assignment. This assignment must correspond to the PRIMARY method of evaluation indicated in Section IV, Methods of Evaluation. That is, it must be a writing assignment or, if more appropriate, an assignment involving problem solving or skill demonstration.

Examine the notes you took during the math instructor's lecture on order of operations and rewrite them using one of the three methods introduced by the human development instructor.

B. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS

Cite two specific assignments that demonstrate college-level critical thinking. (Required for degree applicable courses only.)

1. N/A

2. N/A

C. WORK OUTSIDE OF CLASS

Two hours work outside of class are required for each hour of lecture or equivalent. Each student in this course will be required to participate in the following work outside of class time. Check all that apply.

- ☒ Study
- ☐ Answer questions
- ☐ Skill practice
- ☐ Required reading
- ☐ Problem solving activity
- ☐ Written work (such as essay/composition/report/analysis/research)
- ☐ Journal (done on a continuing basis throughout the semester)
- ☐ Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting)
- ☐ Course is lab only - minimum required hours satisfied by scheduled lab time
- ☒ Other (specify) List some of these

VI. INSTRUCTIONAL METHODOLOGY

D. Check all planned instructional activities that apply:

☒ Lecture	☒ Group Activities
☐ Lab	☐ Role play/simulation
☒ Discussion	☒ Guest Speakers
☐ Multimedia presentations	☐ Field trips
☒ Demonstration	☐ Other (specify)

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

X. TEXTS AND MATERIALS

If multiple selection is offered, only representative texts need be listed. An up-to-date list of required and recommended materials is maintained in the division office.

A. REQUIRED TEXTS (title, author, publisher, year)

None

B. REQUIRED SUPPLEMENTARY READINGS

None

C. OTHER REQUIRED MATERIALS

Three ring notebook, dividers, index cards, highlighter

XI. CONDITIONS OF ENROLLMENT

If this course has a Prerequisite or Corequisite, complete section A. If this course has an Enrollment Limitation complete section B.

D. PREREQUISITE AND/OR COREQUISITE

1. Indicate if this course has a prerequisite or corequisite or both.
   ☐Prerequisite ☐Corequisite ☐Both

2. Indicate Type. Check all that apply.

   ☐Sequential ☐Computational/Communication Skills
   ☐Health and Safety ☐Non-Course
   ☐Standard (If this is a Standard prerequisite or corequisite, attach CCC Form D.)

3. Entrance Skills/Knowledge
   List the required skills and/or knowledge without which a student would be highly unlikely to receive a grade of A, B, C, or Credit (or for Health and Safety, would endanger self or others) in this course.

B. ENROLLMENT LIMITATION

1. Indicate the category which describes the Enrollment Limitation for this course.
   ☐Band/Orchestra
   ☐Theater
   ☐Speech
   ☐Chorus
   ☐Journalism

☐ Dance
☐ Intercollegiate Athletics
☐ Honors Course
☐ Blocks of Courses
☒ Other (specify)
Entering students placed in Math 180

2. List Degree and/or Certificate requirements that are met by this course.

3. List all El Camino College courses that also satisfy the requirements listed above in Section B.2.

Originator: _____ Submittal Date: _____

BOARD APPROVAL DATE: _____

Reviewed and/or Revised by:

_____ Date: _____

_____ Date: _____

_____ Date: _____

REQUIRED SIGNATURES FOR NON-CREDIT COURSE

College Curriculum Committee Chair

_____

Vice-President - Academic Affairs

_____

EL CAMINO COLLEGE

COURSE OUTLINE OF RECORD

I. COURSE DESCRIPTION

Course Title and Number: Mathematics 180 Academy

Descriptive Title: Preparation for College Mathematics and the Math Placement Exam

Discipline: Mathematics

Division:

Course Length: ☐Full Term ☒Other (specify): 48 hours (over three weeks)

Hours Lecture: 48 Hours Laboratory: _____ Course Units: 0

Grading Method: ☐Letter ☐Credit/No Credit ☐Both ☒No Grade

Course Type: ☐Credit, Degree Applicable ☐Credit, Not Degree Applicable ☒Non-Credit

Transfer CSU: ☐Yes Effective Date _____ ☒No

Transfer UC: ☐Yes Approval Date _____ ☐Pending ☒No

Conditions of Enrollment:
Specify Prerequisite Corequisite, Recommended Preparation, Enrollment Limitation or None.

Intended for students who have placed into Mathematics 180

Catalog Description:
This course is designed for students who have placed into Math 180. Topics of study include polynomial, rational, exponential, and logarithmic and trigonometric functions as well as their inverses. An introduction to matrices and analytic geometry are also included. An introduction to matrices and analytic geometry, and sequences and series are also included. Students will become aware of their responsibilities as math students, develop an understanding of learning styles, develop skills in managing time to achieve goals, and learn how to create a support network using college resources and services.

Note: Students enrolled in this course are required to participate in individual and group activities.

II. COURSE OBJECTIVES

List the major objectives of the course. These must be stated in behaviorally measurable terms.

35. Solve problem involving a variety of function types, including linear, quadratic, polynomial, rational, exponential, and logarithm functions and linear inequality.

36. Analyze functions (including polynomials, algebraic, rational, exponential, logarithmic, trigonometry) for critical features, including: intercepts, asymptotes, domain, range, and average rate of change.
37. Perform trigonometry functions, unit circle, simplifying trigonometric expressions, and solve trigonometry equations.
38. Graph relations (including polynomial, rational, exponential, logarithmic, and trigonometric) that model data.
39. Use polar and parametric functions, arithmetic, geometric series, and sequences to solve a variety of problems.
40. Analyze the personal qualities and skills associated with success in a diverse college setting.
41. Examine individual learning styles and personality types and determine how they apply to student success in college.
42. Identify strategies for effective time management and develop a time management plan.
43. Identify and access available resources and support services.

VII. OUTLINE OF SUBJECT MATTER

The topics should be detailed enough to enable an instructor to determine the major areas that should be covered and so that the course may have consistency from instructor to instructor and semester to semester.

Approximate Time in Hours	Major Topics

1) Special triangles (3)
   a. 45, 45, 90
   b. 30, 60, 90
2) Converting Radian and Degree measure (1)
3) The unit circle (3)
4) The Pythagorean Identities (3)
   a. Other Identities to know
5) Trigonometry Functions (5)
   a. Graphs
   b. Solve
   c. Inverse
6) Functions (6)
   a. Composition
   i) Exponential
   ii) Logarithmic
7) Rational Functions (5)
   a. Intercepts
   b. Vertical/Horizontal Asymptotes
   c. Increasing/Decreasing
   d. Limits
8) Polynomials (5)
   a. Increasing/ Decreasing
   b. Maximum/Minimum
   c. Tangent lines
   d. Tail behavior
   e. Sideways parabolas

9) Functions and graphs (8)
   a. Graphs of lines
   b. Piecewise
   c. Transformations
   d. Domain/ Range
   e. Inverse
10) Review (3)
11) Orientation to College Mathematics (6)
   v. Personal Responsibility
   w. Introduction to MESA/STEM program.
   x. Self-management: schedules, planners, notebook organization
   y. Test taking strategies
   z. Introduction to college culture Learning styles

TOTAL HOURS (48)

IV . METHODS OF EVALUATION

A. CREDIT, DEGREE APPLICABLE AND CREDIT, NOT DEGREE APPLICABLE COURSES

Check the PRIMARY method of evaluation for this course.

- ☐ Substantial writing assignments
- ☐ Problem solving demonstrations (computational or non-computational)
- ☐ Skills demonstrations

A minimum of one response in the categories 1, 2, or 3 below, as applicable, is required. However, you may check all that apply.

5. Indicate the types of writing assignments used as primary or secondary methods of evaluation for this course.
   - ☐ Essay exams
   - ☐ Written homework
   - ☐ Term or other papers
   - ☐ Reading reports
   - ☐ Laboratory reports
   - ☐ Other (specify)

14. Indicate the types of problem-solving demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Exams
   - ☐ Laboratory reports
   - ☐ Quizzes
   - ☐ Homework problems
   - ☐ Fieldwork
   - ☐ Other (specify)

15. Indicate the types of skill demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Class performance
   - ☐ Performance exams
   - ☐ Fieldwork
   - ☐ Other (specify)

16. If objective exams are also used, check all that apply.
   - ☐ Multiple choice
   - ☐ Completion
   - ☐ Matching items
   - ☐ True/false
   - ☐ Other (specify)

B. NON-CREDIT COURSE

Indicate the methods of evaluation that will be used to determine that stated objectives have been met.

Daily quizzes, homework, in class activities, self-assessment assignments, and the math placement test

V. COURSEWORK

A. TYPICAL ASSIGNMENT

Provide an example of a typical assignment. This assignment must correspond to the PRIMARY method of evaluation indicated in Section IV, Methods of Evaluation. That is, it must be a writing assignment or, if more appropriate, an assignment involving problem solving or skill demonstration.

Examine the notes you took during the math instructor's lecture on order of operations and rewrite them using one of the three methods introduced by the human development instructor.

B. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS

Cite two specific assignments that demonstrate college-level critical thinking. (Required for degree applicable courses only.)

1. N/A

2. N/A

C. WORK OUTSIDE OF CLASS

Two hours work outside of class are required for each hour of lecture or equivalent. Each student in this course will be required to participate in the following work outside of class time. Check all that apply.

- ☒ Study
- ☐ Answer questions
- ☐ Skill practice
- ☐ Required reading
- ☐ Problem solving activity
- ☐ Written work (such as essay/composition/report/analysis/research)
- ☐ Journal (done on a continuing basis throughout the semester)
- ☐ Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting)
- ☐ Course is lab only - minimum required hours satisfied by scheduled lab time
- ☒ Other (specify) List some of these

VI. INSTRUCTIONAL METHODOLOGY

E. Check all planned instructional activities that apply:

- ☒ Lecture
- ☐ Lab
- ☒ Discussion
- ☐ Multimedia presentations
- ☒ Demonstration
- ☒ Group Activities
- ☐ Role play/simulation
- ☒ Guest Speakers
- ☐ Field trips
- ☐ Other (specify)

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

XI. TEXTS AND MATERIALS

If multiple selection is offered, only representative texts need be listed. An up-to-date list of required and recommended materials is maintained in the division office.

A. REQUIRED TEXTS (title, author, publisher, year)

None

B. REQUIRED SUPPLEMENTARY READINGS

None

C. OTHER REQUIRED MATERIALS

Three ring notebook, dividers, index cards, highlighter

XII. CONDITIONS OF ENROLLMENT

If this course has a Prerequisite or Corequisite, complete section A. If this course has an Enrollment Limitation complete section B.

E. PREREQUISITE AND/OR COREQUISITE

1. Indicate if this course has a prerequisite or corequisite or both.
   ☐Prerequisite ☐Corequisite ☐Both

2. Indicate Type. Check all that apply.

   ☐Sequential ☐Computational/Communication Skills
   ☐Health and Safety ☐Non-Course
   ☐Standard (If this is a Standard prerequisite or corequisite, attach CCC Form D.)

3. Entrance Skills/Knowledge
   List the required skills and/or knowledge without which a student would be highly unlikely to receive a grade of A, B, C, or Credit (or for Health and Safety, would endanger self or others) in this course.

B. ENROLLMENT LIMITATION

1. Indicate the category which describes the Enrollment Limitation for this course.
   ☐Band/Orchestra
   ☐Theater
   ☐Speech
   ☐Chorus
   ☐Journalism
   ☐Dance

☐ Intercollegiate Athletics
☐ Honors Course
☐ Blocks of Courses
☒ Other (specify)
Entering students placed in Math 180

2. List Degree and/or Certificate requirements that are met by this course.

3. List all El Camino College courses that also satisfy the requirements listed above in Section B.2.

Originator: _____ Submittal Date: _____

BOARD APPROVAL DATE: _____

Reviewed and/or Revised by:

_____ Date: _____

_____ Date: _____

_____ Date: _____

REQUIRED SIGNATURES FOR NON-CREDIT COURSE

College Curriculum Committee Chair

_____

Vice-President - Academic Affairs

_____