College of San Mateo
Official Course Outline

1. **COURSE ID:** MATH 820 **TITLE:** Just-in-Time Support for Intermediate Algebra
   Units: 3.0 units **Hours/Semester:** 48.0-54.0 Lecture hours; and 96.0-108.0 Homework hours
   Method of Grading: Pass/No Pass Only
   Corequisite: MATH 120

2. **COURSE DESIGNATION:**
   Non-Degree Credit
   Basic Skills
   Transfer credit: none

3. **COURSE DESCRIPTIONS:**
   Catalog Description:
   A review of the core prerequisite skills, competencies, and concepts for intermediate algebra. Intended for students who are concurrently enrolled in MATH 120, Intermediate Algebra, at College of San Mateo. Review topics include: computational skills developed in pre-algebra, the vocabulary of algebra, translation from English to algebra, and evaluation of literal expressions and functions. Topics covered in more depth include: solving and graphing linear equations and inequalities in one and two variables, solving and graphing systems of equations in two variables, factoring, algebraic operations on polynomial and rational expressions, solving quadratics using factoring, and rational equations. Recommended for students with little or no recent knowledge of algebra.

4. **STUDENT LEARNING OUTCOME(S) (SLO'S):**
   Upon successful completion of this course, a student will meet the following outcomes:
   1. Reorganize or simplify algebraic expressions.
   2. Solve linear equations.
   3. Graph linear equations.
   4. Find linear equations.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**
   Upon successful completion of this course, a student will be able to:
   1. Use of properties of real numbers, order of operations, absolute value and integer exponents
   2. Introduction to the concept of variable to represent relationships from tables, graphs, problem situations and geometric diagrams
   3. Linear relationships including the formulations, graphing, analyzing and solving of linear equations, linear inequalities and two variable systems of linear equations
   4. Arithmetic operations and factoring techniques to reorganize algebraic expressions and equations
   5. Basic operations on rational expressions
   6. Solving simple rational equations and proportions
   7. Various problem-solving strategies to analyze problems and to formulate and carry out appropriate solution strategies

6. **COURSE CONTENT:**
   Lecture Content:
   Reorganize expressions by:
   - Applying properties of integer exponents
   - Expanding the product of polynomials
   - Factoring polynomials
   - Performing arithmetic operations on polynomials

   Solve:
   - Linear equations
   - Linear inequalities
   - Systems of Linear equations with two variables and/or
   - Rational equations (proportions)

   Graph:
   - Linear equations in two variables
   - Linear inequalities in one variable

Form linear equations to represent relationships from:
- Two points
- Slope and a point
- A graph of a line and/or
- An application problem
- Solve and interpret the solutions of application problems

Inspect and analyze a graph in order to:
- Determine if it represents a function
- Evaluate the function
- Determine the domain and range of a function

Topics related to Developing Effective Learning Skills
- Study skills: for example, organization and time management, test preparation and test-taking skills
- Self-assessment: for example, using performance criteria to judge and improve one's own work, analyzing and correcting errors on one's test
- Use of resources: for example, strategies for identifying, utilizing, and evaluating the effectiveness of resources in improving one's own learning, e.g. peer study groups, computer resources, lab services

7. **REPRESENTATIVE METHODS OF INSTRUCTION:**

Typical methods of instruction may include:

A. Lecture
B. Activity
C. Discussion

8. **REPRESENTATIVE ASSIGNMENTS**

Representative assignments in this course may include, but are not limited to the following:

Writing Assignments:

Students will write out solutions for 1-3 problem sets per week.

Reading Assignments:

Students will read 1-2 sections from a textbook per week.

9. **REPRESENTATIVE METHODS OF EVALUATION**

Representative methods of evaluation may include:

A. Class Performance
B. Class Work
C. Exams/Tests
D. Group Projects
E. Homework
F. Quizzes

10. **REPRESENTATIVE TEXT(S):**

Possible textbooks include:

A. Lehmann, Jay. *Intermediate Algebra: Functions and Authentic Applications*, 5th edition ed. Pearson, 2015

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Course Originator: Christopher Walker