

# MATH 240A: JUST-IN-TIME SUPPORT FOR MATH 40A

## Foothill College Course Outline of Record

Heading	Value
<b>Effective Term:</b>	Summer 2024
<b>Units:</b>	2.5
<b>Hours:</b>	2.5 lecture per week (30 total per quarter)
<b>Corequisite:</b>	MATH 40A.
<b>Advisory:</b>	Demonstrated proficiency in English by placement via multiple measures OR through an equivalent placement process OR completion of ESLL 125 & ESLL 249; not open to students with credit in MATH 280.
<b>Degree &amp; Credit Status:</b>	Non-Degree-Applicable Credit Course Basic Skills
<b>Foothill GE:</b>	Non-GE
<b>Transferable:</b>	None
<b>Grade Type:</b>	Letter Grade (Request for Pass/No Pass)
<b>Repeatability:</b>	Not Repeatable
<b>Formerly:</b>	MATH 280

## Student Learning Outcomes

- Students will assess their own learning process and performance.
- Students will define, interpret, and use variables to represent quantities that vary.
- Students will simplify expressions using the order of operations and solve linear equations involving one or two variables.

## Description

A just-in-time approach to the core prerequisite skills, competencies, and concepts needed in Quantitative Reasoning. Intended for students who are concurrently enrolled in MATH 40A at Foothill College. Topics include: a review of computational skills developed in beginning and intermediate algebra, including proportional reasoning, order of operations, simplifying expressions, solving equations, use of variables, creating and using graphical displays.

## Course Objectives

The student will be able to:

1. Plan, implement, and assess their work cycles, at the problem, lesson, module, and course level, to develop self-efficacy through the practice of self-regulated learning.
2. Collaborate to collect, assemble, discuss, and present culturally-relevant information using group member knowledge, reading strategies, and the internet.
3. Read, comprehend, and discuss quantitative situations drawn from the fields of personal finance, health and wellness, environmental technologies, and civic engagement.

4. Demonstrate an understanding of mathematics by writing complete and correct responses to questions.
5. Use algebraic notation and symbol manipulation strategies.
6. Use dimensional analysis to solve complex problems.

## Course Content

1. Plan, implement, and assess work cycles, at the problem, lesson, module, and course level, to develop self-efficacy through the practice of self-regulated learning
  - a. Workload analysis
    - i. School/study time calculation
    - ii. Plotting weekly calendar
  - b. Math support resources
    - i. Classmates
    - ii. Instructor
    - iii. Tutoring resources
  - c. Learning opportunities in math
    - i. Productive struggle
    - ii. Deliberate practice
    - iii. Explicit connections
    - iv. Collaboration and teamwork
2. Collaborate to collect, assemble, discuss, and present culturally-relevant information using team member knowledge, reading strategies, and the internet
  - a. Build collaboration skills
  - b. Mathematical identity development
  - c. Cultural capital recognition and development
  - d. Quantitative communication skill development
3. Read and discuss quantitative situations drawn from the fields of personal finance, health and wellness, environmental technologies, and civic engagement
  - a. Reading comprehension strategies
    - i. Comprehension and Synthesis Chart
    - ii. Qualitative information and vocabulary
    - iii. Quantitative information and vocabulary
    - iv. Plan of action
  - b. Reading apprenticeship routines, such as:
    - i. "Think Aloud" or
    - ii. "Talk to the Text"
  - c. Discussion strategies and norms
    - i. Think time before share
    - ii. Whip around discussion format
4. Employ strategies for writing complete and correct responses to questions
  - a. Simple and complete
  - b. Specific
  - c. Stand-alone
5. Use algebraic notation and symbol manipulation strategies
  - a. Variables
    - i. Subscripts
  - b. Order of operations
  - c. Units and dimensional analysis
  - d. Solve equations
    - i. Linear
    - ii. Radical

- iii. Exponential
  - iv. Quadratic
  - e. Inequalities
  - f. Evaluating formulas
6. Use dimensional analysis to solve complex problems with multiple pieces of information and steps
- a. Units
    - i. Conversions
    - ii. Equivalencies
  - b. Application to real life problems
  - c. Equations and proportions

## Lab Content

Not applicable.

## Special Facilities and/or Equipment

1. Access to graphing technology, such as a graphing calculator or graphing software.
2. Access to a computer and the internet.

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Group and independent exploratory activities  
Homework  
Performance in MATH 40A

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Group work  
Discussion  
Mini-lectures  
Instructor-guided discovery  
Formative assessment

## Representative Text(s) and Other Materials

No course materials.

## Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Problem sets
2. Exploratory activities and/or projects
3. Reading and/or writing assignments

## Discipline(s)

Mathematics