

NC 268: EIGHTH GRADE MATHEMATICS

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2021
Credits:	0
Total Contact Hours:	80
Lecture Hours :	80
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	160
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Non-Credit Course

Catalog Course Description

This is a four-week enrichment course designed to help students prepare for grade eight mathematical concepts. It will ensure they have a firm understanding of the previous foundational middle school mathematical concepts. This course is for students who have a basic knowledge of arithmetic, the emphasis is on concepts essential for success in future mathematical courses. Course content includes integers, signed fractions, signed decimals, grouping symbols, the order of operations, exponents, and algebraic expressions/formulas. Students will also be exposed to real-life situations where mathematical calculations are used in common settings. 80 lecture hours.

Course Objectives

- Understand that there are numbers that are not rational and approximate them by rational numbers.
- Work with radicals and integer exponents.
- Understand the connection between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.
- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.
- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
- Investigate patterns of association in bivariate data.

Major Course Content

1. Real Number System
 - a. Rational vs irrational
 - b. Exponents
 - c. Scientific notation
2. Expressions and Equations

- a. Solving for x
 - b. Types of solutions
 - c. Solving systems of equations
3. Functions
 - a. Slope, all representations, graph, table, two points & equations
 - b. Graphing lines
 - c. Converting from standard form to slope intercept form
 - d. Parallel & perpendicular lines
 - e. Comparing rates of change
 - f. Identifying functions all representation
 4. Geometry
 - a. Translation, reflection, rotation & dilation of figures
 - b. Similarity
 - c. Triangle sum theorem, exterior angle theorem
 - d. Pythagorean Theorem
 - e. Parallel lines cut by a transversal angle concept
 5. Statistics and Probability
 - a. Two-way frequency table
 - b. Bivariate data, scatter plot, interpreting graphs, correlations

Suggested Reading Other Than Required Textbook

Weapons of Math Destruction by Cathy O'Neil

Examples of Required Writing Assignments

Describe the Pythagorean Theorem and how it can be applied in at least two examples in real life.

Examples of Outside Assignments

Why do engineers use triangles in construction instead of squares or rectangles?

Instruction Type(s)

Lecture, Online Education Lecture