

# Course Description – Accelerated CC Integrated Math I

Student Edition: Integrated Mathematics 1 – Volumes 1 and 2 (Houghton Mifflin Harcourt)

Course Description: Integrated Mathematics 1 is the first course of a three-course sequence including Integrated Mathematics 1, Integrated Mathematics 2, and Integrated Mathematics 3 and follows the Integrated Math Pathway in the Common Core State Standards. IM 1 is designed to use patterns, models, and conjectures to build mathematical understanding. Students taking this course will extend their knowledge in **Number and Quantity, Algebra, Functions, Modeling, Geometry, and Statistics and Probability**. Students will deepen and extend their understanding of linear relationships and be introduced to exponential functions, modeled through data. Students will use properties and theorems involving congruent figures to expand and broaden understanding of geometric knowledge. Students will experience mathematics as a coherent, useful, and logical subject that draws on their ability to make sense of problem situations, and will develop the ability to explore and solve mathematical problems, think critically, work cooperatively with other students and communicate mathematical ideas clearly.

## I. UNIT 1: Quantities and Modeling

- a. Module 1 – Quantitative Reasoning
  - i. 1.1 – Solving Equations
  - ii. 1.2 – Modeling Quantities
  - iii. 1.3 – Reporting with Precision and Accuracy
- b. Module 2 – Algebraic Models
  - i. 2.1 – Modeling with Expressions
  - ii. 2.2 – Creating and Solving Equations
  - iii. 2.3 – Solving for a Variable
  - iv. 2.4 – Creating and Solving Inequalities
  - v. 2.5 – Creating and Solving Compound Inequalities

## II. UNIT 2: Understanding Functions

- a. Module 3 – Functions and Models
  - i. 3.1 – Graphing Relationships
  - ii. 3.2 – Understanding Relations and Functions
  - iii. 3.3 – Modeling with Functions
  - iv. 3.4 – Graphing Functions
- b. Module 4 – Patterns and Sequences
  - i. 4.1 – Identifying and Graphing Sequences
  - ii. 4.2 – Constructing Arithmetic Sequences
  - iii. 4.3 – Modeling with Arithmetic Sequences

## III. UNIT 3: Linear Functions, Equations, and Inequalities

- a. Module 5 – Linear Functions
  - i. 5.1 – Understanding Linear Functions
  - ii. 5.2 – Using Intercepts
  - iii. 5.3 – Interpreting Rate of Change and Slope
- b. Module 6 – Forms of Linear Equations
  - i. 6.1 – Slope-Intercept Form
  - ii. 6.2 – Point-Slope Form
  - iii. 6.3 – Standard Form

- iv. 6.4 – Transforming Linear Functions
- v. 6.5 – Comparing Properties of Linear Functions

## c. Module 7 – Linear Equations and Inequalities

- i. 7.1 – Modeling Linear Relationships
- ii. 7.2 – Using Functions to Solve One-Variable Equations
- iii. 7.3 – Linear Inequalities in Two Variables

## IV. Unit 4: Statistical Models

- a. Module 8 – Multi-Variable Categorical Data
  - i. 8.1 – Two-Way Frequency Tables
  - ii. 8.2 – Relative Frequency
- b. Module 9 – One-Variable Data Distributions
  - i. 9.1 – Measures of Center and Spread
  - ii. 9.2 – Data Distributions and Outliers
  - iii. 9.3 – Histograms and Box Plots
  - iv. 9.4 – Normal Distributions
- c. Module 10 – Linear Modeling and Regression
  - i. 10.1 – Scatter Plots and Trend Lines
  - ii. 10.2 – Fitting a Linear Model to Data

## V. UNIT 5: Linear Systems and Piecewise-Defined Functions

- a. Module 11 – Solving Systems of Linear Equations
  - i. 11.1 – Solving Linear Systems by Graphing
  - ii. 11.2 – Solving Linear Systems by Substitution
  - iii. 11.3 – Solving Linear Systems by Adding or Subtracting
  - iv. 11.4 – Solving Linear Systems by Multiplying First
- b. Module 12 – Modeling with Linear Systems
  - i. 12.1 – Creating Systems of Linear Equations

- ii. 12.2 – Graphing Systems of Linear Inequalities
- iii. 12.3 – Modeling with Linear Systems
- c. Module 13 – Piecewise-Defined Functions
  - i. 13.1 – Understanding Piecewise-Defined Functions
  - ii. 13.2 – Absolute Value Functions and Transformations
  - iii. 13.3 – Solving Absolute Value Equations
  - iv. 13.4 – Solving Absolute Value Inequalities

## **VI. UNIT 6: Exponential Relationships**

- a. Module 14 – Geometric Sequences and Exponential Functions
  - i. 14.1 – Understanding Geometric Sequences
  - ii. 14.2 – Constructing Geometric Sequences
  - iii. 14.3 – Constructing Exponential Functions
  - iv. 14.4 – Graphing Exponential Functions
  - v. 14.5 – Transforming Exponential Functions
- b. Module 15 – Exponential Equations and Models
  - i. 15.1 – Using Graphs and Properties to Solve Equations
  - ii. 15.2 – Modeling Exponential Growth and Decay
  - iii. 15.3 – Using Exponential Regression Models
  - iv. 15.4 – Comparing Linear and Exponential Models

## **VII. UNIT 7: Transformations and Congruence**

- a. Module 16 – Tools of Geometry
  - i. 16.1 – Segment Length and Midpoints
  - ii. 16.2 – Angle Measures and Angle Bisectors
  - iii. 16.3 – Representing and Describing Transformations
  - iv. 16.4 – Reasoning and Proof
- b. Module 17 – Transformations and Symmetry
  - i. 17.1 – Translations
  - ii. 17.2 – Reflections
  - iii. 17.3 – Rotations
  - iv. 17.4 – Investigating Symmetry
- c. Module 18 – Congruent Figures
  - i. 18.1 – Sequences of Transformations
  - ii. 18.2 – Proving Figures Are Congruent Using Rigid Motions

- iii. 18.3 – Corresponding Parts of Congruent Figures are Congruent

## **VIII. UNIT 8: Lines, Angles, and Triangles**

- a. Module 19 – Lines and Angles
  - i. 19.1 – Angles Formed by Intersecting Lines
  - ii. 19.2 – Transversals and Parallel Lines
  - iii. 19.3 – Proving Lines Are Parallel
  - iv. 19.4 – Perpendicular Lines
  - v. 19.5 – Equations of Parallel and Perpendicular Lines
- b. Module 20 – Triangle Congruence Criteria
  - i. 20.1 – Exploring What Makes Triangles Congruent
  - ii. 20.2 – ASA Triangle Congruence
  - iii. 20.3 – SAS Triangle Congruence
  - iv. 20.4 – SSS Triangle Congruence
- c. Module 21 – Applications of Triangle Congruence
  - i. 21.1 – Justifying Constructions
  - ii. 21.2 – AAS Triangle Congruence
  - iii. 21.3 – HL Triangle Congruence
- d. Module 22 – Properties of Triangles
  - i. 22.1 – Interior and Exterior Angles
  - ii. 22.2 – Isosceles and Equilateral Triangles
  - iii. 22.3 – Triangle Inequalities
- e. Module 23 – Special Segments in Triangles
  - i. 23.1 – Perpendicular Bisectors of Triangles
  - ii. 23.2 – Angle Bisectors of Triangles
  - iii. 23.3 – Medians and Altitudes of Triangles
  - iv. 23.4 – Midsegments of Triangles

## **IX. UNIT 9: Quadrilaterals and a Coordinate Proof**

- a. Module 24 – Properties of Quadrilaterals
  - i. 24.1 – Properties of Parallelograms
  - ii. 24.2 – Conditions for Parallelograms
  - iii. 24.3 – Properties of Rectangles, Rhombuses, and Squares
  - iv. 24.4 – Conditions for Rectangles, Rhombuses, and Squares
  - v. 24.5 – Properties and Conditions for Kites and Trapezoids
- b. Module 25 – Coordinate Proof Using Slope and Distance
  - i. 25.1 – Slope and Parallel Lines
  - ii. 25.2 – Slope and Perpendicular Lines
  - iii. 25.3 – Coordinate Proof Using Distance with Segments and Triangles
  - iv. 25.4 – Coordinate Proof Using Distance with Quadrilaterals
  - v. 25.5 – Perimeter and Area on the Coordinate Plane