

College Transition Mathematics Course Outline

ADULT BASIC SKILLS COLLEGE ACADEMIC READINESS (CAR) PROGRAM PIEDMONT COMMUNITY COLLEGE

COURSE DESCRIPTION:

The College Academic Readiness (CAR) College Transition Mathematics Course is a non-credit course designed to provide adult learners with the necessary math skills to place successfully into college-level math classes. This course is a review of concepts in basic arithmetic and algebra. Topics include whole numbers, fractions, decimals, percents, ratio and proportion, order of operations, formulas, algebraic equations, inequalities, and functions.

COURSE DURATION:

60 hours/10-week session (3 days/week, 2 hours/day)

Required Texts:

- Transitions: Preparing for College Mathematics, Dr. Paul Kennedy, Houghton-Mifflin Company, 2010.
- Mathematics Skills Books, Student Edition, Houghton-Mifflin Company, 2010.

Additional Resources:

- Aztec Learning Systems (software program)

COURSE OBJECTIVES:

Upon completion of this course, students will show mastery in the following math content areas:

Whole numbers

- a.) Identify prime and composite numbers
- b.) Find GCF & LCM through prime factorization
- c.) Simplify one-step problems
- d.) Simplify problems with multiple operations

Fractions, Decimals, and Percents

Fractions

- a.) Add, subtract, multiply, and divide
- b.) Reduce to lowest terms

- c.) Convert proper to mixed, mixed to improper
- d.) Convert percents to decimals/fractions/decimals/fractions to percents
- e.) Solve three types of percent problems (finding a percent of a given number, finding what percent one number is of another, and finding a number when a percent of it is given)

Ratio and Proportions

- a.) Solve problems
- b.) Percent proportions

Order of Operations

- a.) Order of Operations- Simplify problems with multiple operations

Pre-Algebra, Simple Algebra

- a.) Combine like terms
- b.) Evaluate algebraic expressions
- c.) Solve algebraic expressions
- d.) Solve word problems through the use of algebraic expressions

Algebra

- a.) Perform operations on rational numbers
- b.) Solve linear equations
- c.) Solve linear inequalities
- d.) Write and graph linear functions
- e.) Solve systems of linear equations
- f.) Multiply polynomials
- g.) Factor polynomials
- h.) Simplify radical expressions

INSTRUCTIONAL/TEACHING STRATEGIES:

The following instructional/teaching strategies have proven to be successful when working with transition students. They may be combined with other instructional strategies not listed, as well.

Lecture

- The lecture is often used with large groups and allows the instructor to present a lot of information within a class period. Students can ask questions or request clarifications, and if time permits, the lecture can lead to class discussions.
- In a college transition class, there should be a plan for at least a few lecture style classes where students are expected to take notes. Once the lecture is over, the instructor

should use the opportunity to discuss with students their reaction to this type of teaching as well as strategies for coping in this setting.

Whole Group Class Discussion

- With this mode of teaching, instructors generally guide the discussion while the students contribute to the conversation.
- It would be good to get students into the habit of receiving and completing assignments outside of the college transition class. Start by letting students know that the assignment will be discussed in class and that all students are expected to participate in the conversation.

Small Group Work

- Small group work or teamwork is becoming more popular in the college setting as well as in the workplace. More and more, college students and workers are expected to team up and work together on group projects or presentations.
- At least one activity in the college transition course should involve students breaking up into groups or teams and working on a specific project.

Individualized Learning

- While individualized learning is not common in a college classroom, there may be campus resources that provide students with this type of support, particularly in learning labs.
- In the college transition course, the instructor should continue to provide students with some individualized learning, however, it should be balanced with the other teaching modes.

Suggested Course Schedule:

- Week 1: Whole Numbers and Fractions
- Week 2: Fractions, Decimals, and Percents
- Week 3: Ratio and Proportions, and Order of Operations
- Week 4: Pre-Algebra- Combine like terms, simplify algebraic expressions
- Week 5: Pre-Algebra- Evaluate algebraic expressions, solve algebraic expressions, solve word problems through the use of algebraic expressions
- Week 6: Algebra- Perform operations on rational numbers, solve linear equations
- Week 7: Algebra- Solve linear inequalities, solve systems of linear equations
- Week 8: Algebra- Multiply and factor polynomials
- Week 9: Algebra- Simplify rational expressions, simplify radical expressions
- Week 10: Algebra Review