

OCCE College Prep Math Overview

As a result of observation and data collected from the various formats and class structures implemented by the OCCE mathematics faculty over the past several years, many strengths and weaknesses were identified. The new sequence of developmental mathematics courses emphasizes the identified strengths and has been designed to improve student success by incorporating a variety of learning techniques as well as study skills activities.

1. The developmental mathematics curriculum will be divided into four 3-credit hour courses. A significant number of 8-week classes will be offered each semester, in order to offer students the opportunity to complete their developmental mathematics sequence in one year.
2. College Prep Math I will be designed for the students who are not prepared for success in our current Basic Math class. The course content will encourage deeper understanding and mastery of basic arithmetic skills.
3. The College Prep Math II – IV courses will be taught using an approach that blends face-to-face classroom instruction, small group instruction, and guided computer instruction.
4. Mini-lectures, study skills activities, group activities, and computer learning activities will be incorporated into each course.
5. Arithmetic skills will be integrated with their related algebra concepts. For example, basic operations with fractions will be taught just before rational expressions.
6. The curriculum will be designed so that certain key concepts are covered in multiple course levels. Solving equations and graphing are examples of concepts that will be covered in multiple courses.

OCCC College Prep Math Course Descriptions

MATH 0103 College Prep Math I

No Prerequisite

This course provides the conceptual foundation of whole numbers, fractions, decimals, percents, and integers with the purpose of preparing students to perform and apply calculation and solution techniques with these topics in future classes. Students will use manipulatives, number lines, and other concrete examples to model basic mathematical representations and operations. Additionally, the student will apply math study skills throughout this course.

MATH 0203 College Prep Math II

Prerequisite Math 0103; Pre- or Co-requisite: LS 0203 College Reading I

The student will perform basic operations with signed numbers, exponents, and polynomials; solve linear equations, inequalities, and formulas; and plot points and graph lines in the Cartesian coordinate system. Additionally, the student will apply math study skills throughout this course.

MATH 0303 College Prep Math III

Prerequisite Math 0203; Pre- or Co-requisite: LS 0203 College Reading I

The student will factor polynomials; perform operations, solve equations and model applications with rational expressions and ratios; and will analyze and write equations for graphs of linear relationships and their applications. Additionally, the student will apply math study skills throughout this course.

MATH 0403 College Prep Math IV

Prerequisite Math 0303; Pre- or Co-requisite: LS 0203 College Reading I

The student will solve systems of linear equations by graphical and algebraic methods; solve equations involving quadratic functions and analyze their graphs; and model applications using linear and quadratic functions. Additionally, the student will apply math study skills throughout this course.

College Prep Math I

College Prep Math I Philosophy

The new College Prep Math I course is designed specifically for students who take multiple semesters to complete our current Basic Math course. Helping students develop a stronger mathematical foundation will be the main focus of the course. A variety of mathematical manipulatives, such as base ten blocks, color tiles, fraction tiles, and fraction circles will be utilized throughout the course. In addition, students will create diagrams to represent fractions and use number lines to graph fractions, mixed numbers, and decimals.

Course materials and activities will be designed to help students:

1. gain a deeper understanding of basic arithmetic concepts
2. memorize basic addition and multiplication facts
3. explore non-traditional strategies for performing calculations
4. develop calculation fluency
5. improve mental math abilities
6. practice organization and time-management techniques
7. increase mathematical confidence
8. prepare for success in future mathematics courses

Team Teaching Plan

College Prep Math I classes will be taught using a team-teaching approach. Teams will consist of two instructors and two classes of students working together in one classroom. The team-teaching approach will allow for a mixture of large group and small group work. The classroom will be equipped with a variety of mathematical manipulatives and learning aids.

OCCC College Prep Math II, III and IV Team Teaching Overview

Team Teaching Concept for College Prep Math II, III, and IV

We will work together in teams of four to co-teach four sections of students in three classrooms (one large classroom, one classroom for small group work, and one classroom equipped with computers). Ideally, we would teach four sections of the same level in one "cluster" of classrooms at a given time. Class times will be divided into 35 minute segments per room.

Large Group Room – combines two classes with one professor for the mini-lecture and possibly some study skills or group work.

Small Group Room – one class of students works with two professors. This would allow each professor to work with a group of 12 or fewer students (or would allow both professors to circulate during the group activity). Small Group time would be used for study skills and group activities.

Computer Room – one class of students working at individual computer stations with their assigned professor. We would also like to have a Developmental Mathematics Lab Instructor and/or a Supplemental Instructor in this room as funds and schedules permit. This is where students would work on mathematics and get individualized help before they go home (or to the math lab) to do their homework.

Important Points Related to the Team Teaching Approach:

1. increased amount of individual attention for students
2. professor is only responsible for grades for his/her class
3. all professors would interact with all four groups of students
4. multiple professors will give students varied opportunities for learning
5. over the course of two class meetings, students would visit all three classrooms in a planned and systematic manner
6. the rooms of a cluster would be close together for ease of transitions
7. team teaching will help everyone adjust to the new courses