

Syllabus
MAT 023 Math Skills
Introduction to Algebra Concepts and Skills, Part 1
4 non-degree credits

COURSE DESCRIPTION:

MAT 023 and 024 are designed to provide the basic skills necessary to succeed in university-level mathematics and mathematics dependent courses. **MAT 023 is intended to help the student develop the following basic skills.** Conceptual understanding of: numerical concepts and operations (signed numbers, fractions, decimals, percents); variables, equations and order relations; the geometric concepts of length, area, and volume. Elementary understanding of the function concept using numerical tables and graphs. Solution of first degree equations in one variable. Integer exponents; scientific notation; operations on polynomials. Emphasis is on conceptual understanding and problem solving in applications in context.

COURSE OBJECTIVES:

Students will be able to:

- Use variables and equations to express generalizations about problem situations, numerical data, and graphs;
- Demonstrate conceptual understanding of numbers (signed numbers, fractions, decimals, scientific notation, percents) and operations on numbers (both constants and variables); and an ability to perform an appropriate operation in a problem situation;
- Solve linear equations in one variable;
- Write equations to model real world situations and solve problems
- Apply the geometric concepts of length, perimeter, area, and volume to solve appropriate problems;
- Make tables and graphs (using technology when appropriate) and analyze them, seeking patterns to gain information about algebraic expressions or sets of data;
- Demonstrate conceptual understanding of integer exponents by using them to model appropriate simple situations;
- Simplify polynomial expressions and fractions with monomial denominators,
- Apply operations with integer exponents to simplify expressions;
- Interpret and communicate the results of elementary algebraic analysis of a situation.

TEACHING AND LEARNING METHODS:

The student must be responsible for her/his own learning. The instructor's role is to provide the student with contexts and opportunities that facilitate the learning process. During class, students will be actively engaged in mathematical activity carefully designed to build conceptual development. Students will work collaboratively in small groups on most of the activities. We will have classroom discussions when appropriate for sharing findings and summarizing important outcomes. Many of the activities will require the use of a graphing calculator. Each student should bring a graphing calculator to every class meeting.

To assure the acquisition of basic algebra and arithmetic skills, we will administer 'gateway quizzes' in a laboratory setting. Students are required to pass these quizzes, but they are permitted multiple tries, with variations in the problems.

To assure development of problem solving skills and understanding of the mathematical concepts in the course, we will provide 'mini-projects', investigations in real world context to help students establish connections and meaning.

STUDENT RESPONSIBILITIES:

Students are required to attend class regularly and on time, participate actively in an assigned small group and participate in class discussion. Note that this attendance and participation are required to earn a passing grade in this course. Quizzes and examinations are required. There will be assignments collected periodically. No late assignments or make-up examinations will be accepted without an **acceptable** (usually medical) excuse. All examinations are cumulative.

REQUIRED:

Elementary Algebra: A Prerequisite for Functions, by Abney, Mowers, Calland, and Crowley with additional material for Math Skills Program at the University of the Virgin Islands by Dance and Sandefur (Pearson Custom Publishing, 2005)

Graphing Calculator (recommended: TI-84 Plus)

Looseleaf notebook

Journal book (small notebook, not looseleaf)

ruler

graph paper

EVALUATION OF STUDENT'S ACHIEVEMENT:

The student will receive a passing grade if the requirements of one of Assessment Methods I, II, or III is fully satisfied. *Note that regular attendance is required for both options I and II. If the student has demonstrated via testing a need for the Math Skills Program, then the student must be in attendance for a passing grade to be awarded. Students who find they are unable to attend are counseled to withdraw from the course.*

Assessment Method I

1. In-class Quizzes, Homework
2. Gateway Quizzes
3. In-class mini-projects
4. Examinations
5. Attendance

Minimum requirement

- 60% average with all journals submitted
 90%. (Multiple tries)
 90% participation; 75% average score
 65% average, with a minimum of 60 on the Final Examination
 No more than 5 absences, for any reason

Assessment Method II

1. Final Examination
2. Attendance

Minimum requirement

- 70% on final exam
 No more than 7 absences, for any reason

Assessment Method III

- Final Examination

Minimum requirement

- 80% on final exam