

**ST. PETERSBURG COLLEGE**  
**APPROVED COURSE OUTLINE**

<u>MAT</u>	<u>1033</u>	<u>INTERMEDIATE</u>	<u>3</u>
Prefix	Number	Course Title	Cr.Hrs.

A. Course Description:

Prerequisite: MAT 0024 or appropriate score on the mathematics placement test.  
Major topics include: factoring, algebraic fractions, radicals and rational exponents, complex numbers, quadratic equations, rational equations, linear equations and inequalities, systems of linear equations and inequalities, introduction to functions, and applications. 47 contact hours.

B. Major Learning Outcomes:

1. The student will use knowledge of properties and terminology when working with mathematical expressions.
2. The student will demonstrate understanding of algorithmic processes and concepts when performing algebraic manipulations, interpretations and computations on mathematical expressions, equations and inequalities.

C. Course Objectives Stated in Performance Terms:

1. The student will use knowledge of properties and terminology when working with mathematical expressions by:
  - a. using precise mathematical language.
  - b. applying the order of operations agreement to simplify expressions involving integers, exponents and radicals.
  - c. simplifying and performing operations with radical expressions.
  - d. using functional notation to evaluate a function.
2. The student will demonstrate understanding of algorithmic processes and concepts when performing algebraic manipulations, interpretations and computations on mathematical expressions, equations and inequalities by:
  - a. solving literal equations which involve factoring a common factor.
  - b. multiplying and dividing exponential expressions with rational exponents.
  - c. factoring polynomials including the sum and difference of cubes.
  - d. adding, subtracting, multiplying and dividing algebraic fractions including monomial, binomial, and trinomial denominators expressing the result in simplified form.

- e. solving problems involving the use of the Pythagorean Theorem and distance formula with applications to the coordinate plane.
- f. solving radical equations involving one radical expression (square root).
- g. writing an equation in slope-intercept, standard and general form for a line which passes through two given points.
- h. writing an equation in slope-intercept, standard and general form for a line when given the slope and a point on the line.
- i. writing an equation in slope-intercept, standard and general form for a line which passes through a given point and is parallel to or perpendicular to a given line.
- j. solving systems of linear equations in two variables graphically and algebraically.
- k. solving systems of linear inequalities in two variables by graphing.
- l. solving real world problems using one or two variables.
- m. solving quadratic equations by factoring, completing the square and using the quadratic formula.
- n. solving real world problems which require the use of quadratic equations.
- o. graphing quadratic functions including finding the vertex, axis of symmetry and  $x$ - and  $y$ - intercepts.
- p. solving rational equations.
- q. performing operations on complex numbers and write the answer in standard form ( $a + bi$ ).

D. Criteria Performance Standard:

In order to earn a grade of C or better, the student will achieve at the 70% level or higher on classroom measures.

Revised 8/84

Effective Session 19981

DBT 11/19/91

Effective Session 19912

3 YR C&I Review 8/95

C & I 11/25/97; DBT 12/15/97