A.	Division:	Instructional Division		Effective Date:		May 2006

B.	Department / Program Area:	Mathematics Faculty of Science & Technology	Revision	X	New Course

If Revision, Section(s) Revised: F, J, M, N, P, Q

Date of Previous Revision: September 2004
Date of Current Revision: May 27, 2005

C:	MATH 1101		**D**:	Basic Algebra	**E:**	3
	Subject & Course No.			Descriptive Title		Semester Credits

F: Calendar Description:
This is a one semester course for students who need to improve their knowledge of algebra. Topics covered include: functions and relations, domain and range; algebraic techniques, factoring, exponents and radicals, polynomial and rational expressions; solving and graphing equations and inequalities in one variable; solving and graphing systems of equations; quadratic equations; graphing lines and parabolas; mathematical modeling; basic geometric formulas.

G: Allocation of Contact Hours to Type of Instruction / Learning Settings

Primary Methods of Instructional Delivery and/or Learning Settings:

    Lecture

Number of Contact Hours: (per week / semester for each descriptor)

    4 hours per week

Number of Weeks per Semester:

    15

H: Course Prerequisites:
BC Principles of Math 11 with C or better
or
DVST 0411 with C- or better
or
BC Applications of Math 12 with C or better and a score of 12 or better on the Math Assessment Test

I: Course Corequisites:

None

J: Course for which this Course is a Prerequisite

MATH 1105 and MATH 1110

K: Maximum Class Size:
35

L: PLEASE INDICATE**:**

    ☐ Non-Credit

    ☒ College Credit Non-Transfer

    ☐ College Credit Transfer:

SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bctransferguide.ca)

M: Course Objectives / Learning Outcomes

At the end of this course, the successful student will have reviewed and strengthened their algebraic skills and have a level of algebraic proficiency which will allow them to continue their mathematical studies to an in-depth study of functions and their associated graphs (specifically, precalculus courses).

At the end of this course, the successful student should be able to:

- distinguish between different sets of real numbers
- read and use a variety of notations signifying sets / subsets of real numbers, including set builder, number line, inequality and interval notation
- appreciate the connection between the set operations of intersection and union and the conditions of "and" and "or"
- understand the concept of a solution set
- work with two-dimensional Cartesian co-ordinate system
- work with function notation
- determine if an equation in two variables represents an equation or a relation
- determine the domain and range of a function
- evaluate and form arithmetic combinations of functions
- correctly apply properties of commutativity, associativity, distribution, inequality, equality and absolute value, and use the laws of exponents in the course of simplifying expressions and solving inequalities and equations
- simplify linear, polynomial, absolute value, rational, and radical expressions
- interconvert radical and fractional exponent expressions
- solve linear, quadratic, factorable polynomial, absolute value, rational, and radical equations, check solution(s) and express solution sets using a variety of notations
- solve linear and simple absolute value inequalities and express solutions sets using a variety of notations
- solve quadratic and quadratic form equations by factoring, completing the square or (deriving and) using the quadratic formula
- factoring techniques using grouping, common factors, difference of squares, sum and difference of cubes
- add, subtract, multiply and divide polynomials, including synthetic division
- translate a problem given in English (story form) into an associated algebraic form, communicate clearly the relationship between the model and the original problem, articulate any restrictions on solutions, solve the algebraic problem and use the solution to solve the original problem
- find volumes, areas and perimeters of selected geometric figures and employ the results in the context of story/applied problems
- use the Pythagorean theorem to solve story problems, to calculate distances, and to find midpoints
- solve linear systems of equations algebraically and graphically
- graph linear equations in general, slope-intercept and slope-point forms, and find linear equations for given graphs
- distinguish parallel and perpendicular lines
- graph simple absolute value and radical functions
- graph quadratic functions (parabolas) by completing the square

Optional additional subjects, as time allows:

- basic concepts of conic sections: circles, parabolas, ellipses, and hyperbolas
- algebraic and graphical solutions of systems of inequalities in two dimensions
- solving three-by-three linear systems
- elements of linear programming
- polynomial and rational function inequalities and their solutions
- supplementary topics in geometry

N: Course Content:

1. Sets of numbers: integers, rationals, reals
2. Basic algebraic techniques - absolute values, exponents, factoring methods, rational expressions
3. Quadratic, polynomial, rational, and absolute value equations
4. Inequalities
5. Functions and relations; domains and ranges
6. Graphing of linear, quadratic, and absolute value functions
7. Mathematical modeling (story problems)
8. Basic geometric formulas
9. Systems of equations in 2-variables
10. Radicals, radical forms, and fractional exponents; radical equations

O: Methods of Instruction:

Lecture

P: Textbooks and Materials to be Purchased by Students:

Bittinger and Ellenbogen, Intermediate Algebra: Concepts and Applications, Seventh Edition, Addison Wesley, 2006

Q: Means of Assessment:

Evaluation will be carried out in accordance with Douglas College policy. The instructor will present a written course outline with specific evaluation criteria at the beginning of the semester. Evaluation will be based on some of the following:

1.	Weekly Tests	0 - 40%
2.	Midterm Tests	20 - 70%
3.	Assignments	0 - 15%
4.	Attendance	0 - 5%
5.	Class Participation	0 - 5%
6.	Final Examination	30%

R: Prior Learning Assessment and Recognition: specify whether course is open for PLAR

None

Course Designer(s):
Larry Tomboulian

Education Council / Curriculum Committee Representative:

Dean / Director:
Des Wilson

Registrar:
Trish Angus