

M: Course Objectives / Learning Outcomes

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

- solve word problems involving linear and quadratic equations (applications will include: geometry problems, work problems, motion problems, mixture problems)
- graph relations and functions on the Cartesian coordinate system (including linear, quadratic, polynomial, $y=1/x$, logarithmic, exponential, trigonometric, absolute value, radical and piecewise functions)
- define a function
- determine domains and ranges of functions and represent them using interval notation
- use the vertical line test to determine whether a relation is a function
- classify functions as periodic, one-to-one, piece-wise, or continuous
- identify maxima, minima, and intervals of increase/decrease by looking at the graph of a function
- apply function transformations (translations, dilations and reflections)
- find and/or graph the inverse of a function
- evaluate composite functions
- use linear functions which model real-life situations to solve problems
- find the vertex of a parabola by completing the square
- use quadratic functions which model real-life situations to solve problems including optimization problems
- solve quadratic inequalities both analytically and graphically, and express the solution in interval notation
- graph polynomial functions
- demonstrate an understanding of the Remainder and Factor Theorems
- divide polynomials using long division and synthetic division
- solve factorable polynomial equations
- graph exponential and logarithmic functions with any base and be able to identify axis-intercepts, asymptotes, domain and range
- understand the inverse relationship between exponential and logarithmic functions
- convert between logarithmic and exponential forms
- evaluate simple logarithms without using a calculator
- change logarithms from one base to another
- use the properties of logarithms to simplify expressions
- solve logarithmic and exponential equations with any base
- define sine, cosine, tangent, secant, cosecant and cotangent in terms of: right triangles, points-in-the-plane and unit circles
- use a calculator to find the trig values for any acute angle, and given the function value for an acute angle, find the angle
- solve right-triangles and word problems involving right-triangles using trigonometry
- convert from degree measure to radian measure and vice versa
- identify special angles on a unit circle
- use reciprocal and Pythagorean identities to simplify trigonometric expressions
- solve simple trigonometric equations giving only the acute angle solution
- graph the sine and cosine functions
- from the graph of a trig function determine the period, amplitude, domain, range and phase-shift
- solve systems of equations in two variables using substitution or elimination methods
- solve systems of equations in three variables using the substitution method
- distinguish between sequences and series, arithmetic sequences, arithmetic series, geometric sequences, geometric series, infinite geometric sequences, recursively defined sequences
- describe a given sequence algebraically
- use formulas to find terms, positions of terms in sequences or series, arithmetic or geometric means, sums of series and sums of infinite series
- use sigma notation to describe series
- evaluate series designated in sigma notation

N:	<p>Course Content:</p> <ol style="list-style-type: none"> 1. Review of equations and inequalities 2. Functions 3. Quadratic Functions 4. Polynomial Functions 5. Exponential and Logarithmic Functions 6. Trigonometric Functions 7. Systems of Equations 8. Sequences & Series 												
O:	<p>Methods of Instruction</p> <p>Lecture</p>												
P:	<p>Textbooks and Materials to be Purchased by Students</p> <p><u>College Algebra and Trigonometry</u>, Lial, Margaret, Hornsby, John, Schneider, David, Pearson Education, Inc., Current edition.</p>												
Q:	<p>Means of Assessment</p> <p>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:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">1. Weekly tests</td> <td style="text-align: right;">(0 – 40%)</td> </tr> <tr> <td>2. Midterm tests</td> <td style="text-align: right;">(20 – 70%)</td> </tr> <tr> <td>3. Assignments</td> <td style="text-align: right;">(0 – 15%)</td> </tr> <tr> <td>4. Attendance</td> <td style="text-align: right;">(0 – 5%)</td> </tr> <tr> <td>5. Participation</td> <td style="text-align: right;">(0 – 5%)</td> </tr> <tr> <td>6. Final Examination</td> <td style="text-align: right;">(30 – 40%)</td> </tr> </table> <p>Note: All sections of a course with a common final examination will have the same weight given to that examination.</p>	1. Weekly tests	(0 – 40%)	2. Midterm tests	(20 – 70%)	3. Assignments	(0 – 15%)	4. Attendance	(0 – 5%)	5. Participation	(0 – 5%)	6. Final Examination	(30 – 40%)
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R:	<p>Prior Learning Assessment and Recognition: specify whether course is open for PLAR</p> <p>N/A</p>												

 Course Designer(s): Allan Majdanac

 Education Council / Curriculum Committee Representative

 Dean / Director: Thor Borgford

 Registrar