CURRICULUM GUIDELINES

A: Instructional Division

B: Faculty of Science & Technology

Date: June 8, 1999

New Course ○ Revision ●

If Revision, Section(s) Revised: F, J, L, M, N, P, Q
Date: November 1990

C: Math 115 (Subject and Course Number) **D:** Precalculus for Non-Science Students (Descriptive Title) **E:** 3 (Semester Credits)

F: Calendar Description:

This is a one semester course for those students who wish to prepare for Math 125, the calculus course for business and social sciences students. The course includes the study of linear, quadratic, inverse, exponential and logarithmic functions, sequences, elementary series and an introduction to probability. Applications are drawn from business and financial models.

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

Primary Methods of Instructional Delivery and/or Learning Settings:

Lecture

Number of Contact Hours per week/semester 4

Number of Weeks per Semester 14

H: Course Prerequisites

Math 101 or equivalent

I: Course Corequisites

None

J: Courses for which this Course is a Prerequisite

Math 125 and Math 160

K: Maximum Class Size

35

L: PLEASE INDICATE:

- ○ Non-Credit
- ○ College Credit Non-Transfer
- ● College Credit Transfer: requested/granted (circle)

If transfer has been granted, specify course equivalents, unassigned credit or block-transfer component, as appropriate:
SFU: Math 110 – 3 credits UBC: UNBC: Math – 3 credits (100 level)

UVIC: Math 120 – 1.5 credits Other:

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 and inequalities
-solve systems of linear equations in two and three unknowns
-translate applied problems into systems of equations and solve
-determine whether or not a relation (given as a graph, equation, or set of ordered pairs) is a function

-find the domain and range of a given function
-sketch the graphs of linear, quadratic, absolute value, greatest integer, radical, factored polynomial, rational, exponential and logarithmic functions
-sketch the graphs of piecewise-defined functions
-use translation and reflection techniques to sketch graphs
-find the vertex of a parabola given the quadratic function
-solve optimisation problems involving quadratic functions
-evaluate composite functions and determine the domain of a composite function
-find the inverse of a given function and determine its domain and range
-translate logarithmic statements into exponential form and vice versa
-evaluate simple logarithms without using a calculator
-use the properties of logarithms to rewrite logarithmic expressions
-solve exponential and logarithmic equations involving any base
-use the change of base formula to evaluate the logarithm of a number to any base using a calculator
-apply logarithms and exponentials to solving problems (e.g. growth, decay, and compound interest)
-use the binomial theorem to expand binomials
-find any term in a sequence given a formula for the nth term
-find the general expression for the nth term given a sequence
-find the sums of sequences using sigma notation and appropriate formulas
-find the sum of a geometric series (where possible)
-determine the sample space for a given experiment
-represent a sample space with a Venn diagram or tree diagram where appropriate
-distinguish between permutations and combinations and apply the appropriate formulas in order to count the number of outcomes
-determine the probability of a particular outcome
-determine conditional probabilities
-determine binomial probabilities
-solve problems related to the mathematics of finance, specifically: compound interest, present value, increasing and decreasing annuities, and amortization

Also, if time permits:

-apply the Factor Theorem, Remainder Theorem and Rational Root Tests to find roots of polynomials
-convert from degree measure to radian measure and vice versa
-determine the six trigonometric ratios for a given acute angle of a right angle triangle
-state the trigonometric ratios for 30°, 45°, and 60° and use them to solve problems
-use a calculator to find the trigonometric function values for any acute angle, and given the function value for an acute angle, find the angle
-given the function value for an acute angle, find the function values for its complement
-given a function value for an acute angle, find the other five function values
-solve simple trigonometric equations giving only the acute angle solution
-solve word problems involving right triangles

N: Course Content

1. Applications of Linear and Quadratic Equations and Inequalities
2. Functions and Function Notation
3. Quadratic Functions
4. Polynomial Functions
5. Translating and Stretching Graphs
6. Rational Functions
7. Composite Functions
8. Inverse Functions
9. Exponential and Logarithmic Functions
10. Systems of Linear Equations

11. Binomial Theorem
12. Sequences, Series and Summation Notation
13. Arithmetic and Geometric Sequences
14. Permutations and Combinations
15. Probability
16. Mathematics of Finance

O: Methods of Instruction

Lecture

P: Textbooks and Materials to be Purchased by Students

Gustafson, R. David and Frisk, Peter D., College Algebra, 6th Edition, Brooks/Cole Publishing Company, 1998.

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. Participation	(0 – 5%)
6. Final Examination	(0 – 40%)

Note: All sections of a course with a common final examination will have the same weight given to that examination.

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

None

Susan Austerle
Course Designer(s)

Education Council/Curriculum Committee Representative

Faculty Dean

P. H Dyn
Registrar