

Sample Course Outline 2007-2008
MATH 11

Content	Planning for Assessment (Teaching Strategies)	Achievement Indicators (Assessment activities)	BC Curriculum Learning Outcomes
Mathematical Process outcomes such as communication, problem solving, connections, mental mathematics, estimation, reasoning, technology, and visualization, have been integrated into the entire course content.			
Chapter 2: Quadratic Functions	Review graphing calculator functions (Chapter 2 intro) Chapter sections 2.1 – 2.7 2.1 Differentiate between roots of an equation and zeros of a function. Make link to physics and projectile motion. ($d = \frac{1}{2} a \cdot t \cdot t$) $h(t) = -\frac{1}{2}gt \cdot t + vt + s$ use for modelling 2.2 Max-Min problems graphically 2.3 transformations Demonstrations using <i>Graphs!Graphs!Graphs!</i> software in lab 2.4 Graphic general quadratic 2.5 Max-Min problems algebraically Introduce some calculus (derivatives) if students ready! 2.6 Inverse of Linear function – graphical/algebraic/visual 2.7 Inverse of Quadratic – is it still always a function? Further extensions with graphing software Homework completion Handout worksheets Section quizzes Chapter review Chapter test	<ul style="list-style-type: none"> • Modify viewing window on graphing calculator to view quadratic function properties (vertex, domain, range, intercepts) • Estimate domain and range • Identify axis of symmetry and write its equation • Determine vertex • Determine inverse function • Determine 'p' & 'q' and relation to vertex in quadratic function graph • Complete square ('a' & 'p' are rational numbers) • Determine value of 'a' when given graph of quadratic function • Describe quadratic function that describes/models a given real life situation • Solve and determine validity of solution • Solving quadratic equation using factoring, quadratic formula, graphing and find most efficient method • Explain relationship between roots of function and x intercepts • Express irrational solutions to a given quadratic equation in simplified mixed radical form 	A8: determine quadratic function graph characteristics, including vertex, domain and range, axis of symmetry, and intercepts A9: perform operations on functions (transformations) A10: determine the inverse of a function A11: connect algebraic and transformations of quadratic functions, using completing the square as required A12: model real world situations, using quadratic functions A13: solve quadratic equations, and relate the solutions to the zeros of a corresponding quadratic function, using factoring, quadratic formula, and graphing A14: determine character of real and non-real roots of a quadratic equation, using discriminant and graphing

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Chapter 3: Polynomial and Rational Functions	Intro to water and wine problem. 3.1 Intro to Polynomial functions 3.2 properties of polynomial graphs 3.3 Polynomial functions and Equations 3.4 Solving polynomial equations (graphically) 3.5 Modelling real situations using cubic functions 3.6 Reciprocal functions 3.7 Rational functions 3.8 Modelling real world situations: revisit the water/wine problem 3.9 Composition of functions Homework completion Handout worksheets Section quizzes Chapter review Chapter test	<ul style="list-style-type: none"> • Perform operations on given functions (addition, subtraction, multiplication, division) • Perform compositions of functions $F(g(x))$ • Explain why domain and range may change for composite functions; identify domain and range 	A9: perform operations on functions and compositions of functions A10: determine inverse of a function; discuss difference between inverse and reciprocal of a function A15: describe, graph, and analyze polynomial and rational functions, using graphing calculator as appropriate. A4: solve non-linear equations by factoring, graphically, and with a graphing calculator
Chapter 4: Analysis of Equations and Inequalities	4.1 solve quadratic equations Derive quadratic formula, develop model for a spiral 4.2 nature of roots of a quadratic equation 4.3 Remainder Theorem - solve 3 rd degree or higher polynomials 4.4 Factor Theorem - synthetic substitution Solve 3 rd degree and higher polynomials 4.5 Solving polynomial inequalities 4.6 Solving rational equations and inequalities 4.7 Solving radical equations and inequalities 4.8 Solving Absolute-Value equations and inequalities Homework completion Handout worksheets Section quizzes Chapter review	<ul style="list-style-type: none"> • Determine if $(x-a)$ is a factor of a polynomial • Determine remainder when polynomial is divided by $(x-a)$ • Determine polynomial coefficient, given factors • Use Remainder and Factor Theorems to solve for more than one coefficient in a polynomial • Graphs polynomial systems using graphing calculator to solve • Verify polynomial system solutions algebraically 	A5: use Remainder Theorem to evaluate polynomial expressions A6: use the Rational Zero and Factor Theorem to determine polynomial factors A.4 solve non-linear equations (3 rd or higher degree) A7: Determine the solution to a system of non-linear equations, using graphing calculator A 16: formulate and apply strategies to solve absolute value equations, radical equations, rational equations, and inequalities

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	Chapter test		
Chapter 5 Systems of Equations and Inequalities	ETC	ETC	A1. graph linear inequalities in two variables A2: solve systems of linear equations in two variables, algebraically (elimination and substitution) and graphically A3: solves linear systems in three variables, algebraically and with a graphing calculator
Chapter 6, 7, 8	ETC	ETC	B3: investigate geometric circle properties using computers with dynamic geometry software and prove them using established concepts and theorems. B4: solve problems and justify the solution strategy using circle properties.
Chapter 9: Coordinate Geometry	ETC	ETC	B1: solving problems involving distances between points and lines B2: Verify and prove assertions in plane geometry using coordinate geometry
Chapter 1: Mathematics of Finance	ETC	ETC	Additional to the curriculum, time permitting.