



COURSE OUTLINE: Pre-Calculus 11, Year 2015-2016

Taught By: A. WONG

Course Description:

This course is designed to provide students with the mathematical understanding and critical thinking skills identified for entry into post-secondary programs that require the study of theoretical calculus. Topics include: sequences, series, absolute value, radicals, quadratic equations, quadric functions, graphing, trigonometry, rational equations, and reciprocal functions.

Objectives:

- Develop algebraic reasoning and number sense.
- Develop trigonometric reasoning.
- Develop algebraic and graphical reasoning through the study of relations.

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

- Demonstrate an understanding of the absolute value of real numbers.
- Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands.
- Solve problems that involve radical equations (limited to square roots).
- Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).
- Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).
- Solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials or trinomials).
- Demonstrate an understanding of angles in standard position $[0^\circ$ to $360^\circ]$.
- Solve problems, using the three primary trigonometric ratios for angles from 0° to 360° in standard position.
- Solve problems, using the cosine law and sine law, including the ambiguous case.
- Factor polynomial expressions of several forms.
- Graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems.
- Analyze quadratic functions of several forms and determine the: vertex, domain and range, direction of opening, axis of symmetry, x- and y-intercepts.
- Solve problems that involve quadratic equations.
- Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.
- Solve problems that involve linear and quadratic inequalities in two variables.
- Solve problems that involve quadratic inequalities in one variable.
- Analyze sequences and series to solve problems.

- Graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions).

Course Content for Term 1:

- Chapter 1 – Sequences and Series
- Chapter 2 – Absolute Value and Radicals
- Chapter 3 – Solving Quadratic Equations

Course Content for Term 2:

- Chapter 4 – Analyzing Quadratic Functions
- Chapter 5 – Graphing Inequalities and System of Equations
- Chapter 6 – Trigonometry

Course Content for Term 3:

- Chapter 7 – Rational Expressions and Equations
- Chapter 8 – Absolute Value and Reciprocal Functions

General Assessment:

- Assessment will be based on chapter tests (60%) and quizzes (20%).
- The final exam will be worth 20%.
- Students may earn bonus marks through extra work.

Classroom resources:

- G. Davis, et al. Pre-Calculus 11. Pearson, 2011. (workbook - \$24, electronic version – no charge)

Resource Materials to be supplied by students:

- Pencils, erasers, colored markers
- Graphing calculator