

**Course Plan**

**Burnaby Online Program – School District #41 Burnaby**

Course: Pre-Calculus Math 11

Course Length: 10 months (approx 100 hours)

Teacher:

Email:

Phone:

IM:

**Course Description:** Students who take the Pre-Calculus Mathematics pathway will spend more time developing their understanding of symbol manipulation and of generalizations of the sophisticated mathematical concepts. Although there is an increased emphasis on the application of mathematics, the primary purpose of this pathway is to help students develop the skills needed to continue on with the study of Calculus.

**Course Organization:**

1. Pre-Calculus Mathematics 11 consists of 4 Modules.
2. Each Module contains 2 or 3 Units (9 Units in all).
3. Each Unit includes a Send-In Assignment for marks. These are written assignments. They will be marked and returned.
4. There is a test at the end of each module.

**Course Content:**

<b>Module 1</b>	Unit 1 Absolute Values and Radicals Unit 2 Factoring Polynomials
<b>Module 2</b>	Unit 3 Rational Expressions Unit 4 Quadratic Functions
<b>Module 3</b>	Unit 5 Solving Quadratic Functions Unit 6 Solving Systems of Equations
<b>Module 4</b>	Unit 7 Arithmetic and Geometric Sequences and Series Unit 8 Trigonometry Unit 9 Absolute Value and Reciprocal Functions

**How will your mark be calculated?**

Unit Assignments	30%
Module Tests	50%
Final Exam	20%

### **Assignments:**

Before you write a module test, you must submit the Send-in assignments for each unit covered in the module. If you aren't sure how to do any of the questions, you should be asking for help.

### **Tests:**

Module tests cover multiple units of the course. All tests are "closed book" and will be written on-site at Burnaby Online and must be scheduled with your teacher.

### **Resources:**

Course materials are presented online using video lessons from the Content Connections courseware supplemented by internet links as needed. There is no text for this course.

### **Students are expected to:**

- contact the teacher by instant messaging, email or phone when help is needed or questions arise
- be actively engaged and submitting work on a regular basis
- inform the teacher when they will be inactive for two or more weeks.
- be aware that if they are inactive in a course for four or more weeks they may be removed from that course
- check their email at least twice a week
- create and submit completed solutions for all activities in the unit/chapter before requesting a test.
- cite all sources properly
- answer in their own words
- check that their work and tests have been marked.
- make time available to come in to Burnaby Online to write tests.
- make appointments to write tests at least 2 school days in advance.

## **Learning Outcomes:**

### **Algebra and Number**

- A1. Demonstrate an understanding of the absolute value of real numbers.
- A2. Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands
- A3. Solve problems that involve radical equations (limited to square roots).
- A4. Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).
- A5. Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).
- A6. Solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials or trinomials).

### **Trigonometry**

- B1. Demonstrate an understanding of angles in standard position [ $0^\circ$  to  $360^\circ$ ].
- B2. Solve problems, using the three primary trigonometric ratios for angles from  $0^\circ$  to  $360^\circ$  in standard position.
- B3. Solve problems, using the cosine law and sine law, including the ambiguous case.

### **Relations and Functions**

- C1. Factor polynomial expressions of the form:
  - $ax^2+bx+c$ ,  $a \neq 0$
  - $a^2x^2-b^2y^2$ ,  $a \neq 0$ ,  $b \neq 0$
  - $a(f(x))^2+b(f(x))+c$ ,  $a \neq 0$
  - $a^2(f(x))^2-b^2(g(y))^2$ ,  $a \neq 0$ ,  $b \neq 0$where  $a$ ,  $b$  and  $c$  are rational numbers.
- C2. Graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems.
- C3. Analyze quadratic functions of the form  $y = a(x-p)^2 + q$  and determine the:
  - vertex
  - domain and range
  - direction of opening
  - axis of symmetry
  - $x$ - and  $y$ -intercepts.
- C4. Analyze quadratic functions of the form  $y = ax^2 + bx + c$  to identify characteristics of the corresponding graph, including:
  - vertex
  - domain and range
  - direction of opening
  - axis of symmetry
  - $x$ - and  $y$ -interceptsand to solve problems.
- C5. Solve problems that involve quadratic equations.
- C6. Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.
- C7. Solve problems that involve linear and quadratic inequalities in two variables.
- C8. Solve problems that involve quadratic inequalities in one variable.
- C9. Analyze arithmetic sequences and series to solve problems.
- C10. Analyze geometric sequences and series to solve problems.
- C11. Graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions).