

Seycove Secondary



Course: Pre-Calculus 11

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Course Description

In our increasingly technological society, students require the ability to solve problems, understand and use mathematics, interpret the results, and explain their findings. Pre-Calculus 11 is a means of gaining these necessary skills. Students will explore reasoning, problem solving, communicating and connecting mathematical concepts.

Many universities require Pre-Calculus 11 for admission to math, science, business and engineering programs. Some universities require this course to be done in class, rather than on-line, to ensure that students master the course content. Classroom instruction additionally provides constant and consistent feedback to produce not only correct solutions, but those that are mathematically elegant.

Enduring Understandings and Big Ideas

By the end of this course students is expected to understand that:

- Algebra allows us to generalize relationships through abstract thinking
- The meanings of, and connections between, operations extend to powers, radicals and polynomials
- Quadratic relationships are prevalent in the world around us
- Trigonometry involves using proportional reasoning to solve indirect measurement problems

Inquiry Questions

- How can we factor to simplify complex radical and rational expressions?
- What makes a function graph elegant?
- How can we solve a system of equations using either algebra or technology?
- How are quadratic expressions used everyday?
- How are loan payments and the value of investments calculated?

Course Content

By the end of this course, a student should be able to do the following.

Number Systems

- Switch from rational exponents to radical expression
- Solve complex equations using order of operations
- Graph radical solutions

- Determine extraneous roots for radical and rational expressions
- Determine intervals when a function is positive, negative, or zero
- Understand absolute value functions

Quadratic Functions

- Identify characteristics of quadratic graphs
- Use algebra and graphing technology to solve quadratic functions
- Solve contextual quadratic situations

Trigonometry

- Demonstrate an understanding of angles in standard position
- Use sine and cosine laws to solve non-right triangles
- Understand and draw the Unit Circle
- Use the trigonometric functions sine, cosine and tangent to solve problems.

Financial Literacy

- Use exponent math to determine compound interest
- Calculate loan payments
- Analyze investment potential

Learning Plan

Learning will occur through the following activities.

- note-taking/active listening
- group work/peer teaching
- completing assigned questions
- assignments/worksheets done in class and at home
- asking questions of the teacher both in and out of class

Feedback from these activities is used to prepare students for formative assessments.

Classroom Expectations and Necessities

As with all courses, students are expected to attend all classes, arrive on time, behave respectfully towards staff and other students, actively participate in the lessons and work to the best of their ability. Please note that students with unexplained absences for tests or quizzes will receive a reduced mark. Students should also be aware of the Seycove Code of Conduct in regards to plagiarism. I consider allowing others to copy your work as cheating and thus both the student copying the work and the one allowing his or her work to be copied will receive a reduced mark. Technology can be used in the classroom but a student may need to put it away if it becomes a distraction.

You must have a graphing calculator for this course with Texas Instruments (TI) being the preferred brand. There are a number of calculators available for rent through Seycove's library. Normal supplies such as pencil, paper and textbook are also required each class. Students wishing to complete their work on a

computer are welcome to do so. Only computer-based students should submit their work in a typed form. All other students should submit hand-written work. Computer-based students found playing computer games in class lose the privilege to work on a computer. Course marks are calculated as follows.

Tests	45%
Quizzes	25%
Assignments	15%
Final Exams	15%

All quizzes are formative. This means that if a student achieves an A on the chapter or unit test, they will receive a higher mark on the chapter quiz.

Grade Expectations

An “A” student can:

- Demonstrate and apply the curricular competencies
- Analyze the information and synthesize the correct solution
- Discern challenging patterns
- Apply the concepts and extrapolate onto contextualized situations
- Demonstrate superb command of numeracy (no computational error)
- Solve challenging problems in familiar and unfamiliar situations

A “B” student can:

- Sometimes demonstrate and apply the curricular competencies
- Analyze the information and synthesize the solution
- Identify the complex patterns within the context of the problem
- Apply the concepts and understand some details in contextualized situations
- Demonstrate good command of numeracy
- Solve challenging problems in familiar situations

A “C” student can:

- Demonstrate the curricular competencies
- Organize the information and attempt to interpret the solution
- Identify the patterns within the context of the problem
- Build on learned concepts but is still working on finding details in contextualized situations
- Solve routine two-step problems

Resources

The textbook is McGraw-Hill Ryerson’s Pre-Calculus 11 (replacement cost \$80) .The matching Student Workbook is available to rent or purchase (replacement cost \$12). Both are available in the school library.

Curricular Competencies are detailed at the following link.

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>