Math 10C Course Outline

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“The essence of mathematics is not to make simple things complicated, but to make complicated things simple.” –S. Gudder

INSTRUCTIONAL GOALS:
“To prepare students to solve problems, communicate and reason mathematically, make connections between mathematics and its applications, become mathematically literate, appreciate and value mathematics and make informed decisions as contributors to society.”
– Math Program of Studies Alberta

ALLOCATION OF TIME:
Students will receive 75 minutes of instruction time per day.

MAJOR CONCEPTS:
The learning outcomes developed through the Alberta Mathematics curriculum are divided into 3 strands:
1. Measurement
2. Algebra & Number
3. Relations & Functions
Each strand is addressed with specific outcomes as well as sub-strands in order to provide a rich variety of math experiences for students

TENTATIVE COURSE SCHEDULE:

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<th>Unit</th>
<th>Chapters</th>
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<td>Exponents &amp; Irrational Numbers</td>
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<td>Measurement &amp; Trigonometry</td>
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<td>Linear Functions &amp; Relations</td>
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<td>Linear Equations</td>
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REQUIRED MATERIALS:
- Two Binders – *One for note taking, the other to collect items for the students Math Portfolio*
- Loose Leaf Paper
- Scientific or Graphing Calculator (Preferred)
- Pencil, Ruler and Eraser

*These materials will be required before the start of every class. If you have difficulty locating any of these materials please see Mr. Dillon*

EVALUATIONS:
- Polynomials 14%
- Exponents & Irrational Numbers 12%
- Measurement & Trigonometry 12%
- Linear Functions & Relations 15%
- Linear Equations 17%
- Research Project 10%
- Final Exam: 20%
- TOTAL 100%

**All weightings are subject to changing at the teachers’ discretion**

UNIT BREAKDOWN
- Unit Exam: 60%
- Assignments & Quizzes 40%

All unit exams will be secured and will not be kept by students. Students will be given the opportunity to thoroughly go over each exam in detail after all students have written the test. At this time students will be given the option to rewrite the exam (same concepts but different test). However, before a student will be allowed to do so they must first show that they understand the concepts not understood initially. This will be accomplished through various assignments and quizzes. Once the material is mastered and the trouble concepts are no longer an issue the student will be permitted to rewrite the test in question.

CLASSROOM EXPECTATIONS:

**Come prepared for class.**
That means bringing all materials required every day.

**Please refrain from using your cellular device for leisure purposes during class**
There will be ample time for you to take your phone out for educational purposes (Using it as a calculator is not one). You will be prompted when permitted to use your phone. If Mr. Dillon feels that students are abusing this privilege, actions will be taken to limit cell phone usage.

**Use time effectively.**
We only have so many days to get the most out of this course. When given time to work on a task, I encourage you to use it. Work well in class = No math homework.

**Bring a positive attitude.**
Come to class willing to participate in the activities that are planned. I will do my best to make math fun but I will need your help in order to do so.

**Respect.**
Treat yourself, your classmates, and your teacher with respect and it will be reciprocated.

**RESOURCE:**
*Foundations & Pre-Calculus 10* (Pearson) – Student textbook and Teacher Resource

**Unit 1 – Measurement**

This unit will cover chapters 1 and 2 in “Foundations & Pre-Calculus 10”

**Chapter 1 – Measurement**

**Specific Outcomes:**

1. Solve problems that involve linear measurement, using:
   - SI and imperial units of measure
   - Estimation strategies
   - Measurement strategies.
2. Apply proportional reasoning to problems that involve conversions between SI and imperial units of measure.
3. Solve problems, using SI and imperial units, that involve the surface area and volume of 3-D objects, including:
   - Right cones
   - Right cylinders
   - Right prisms
   - Right pyramids
   - Spheres

**Chapter 2- Trigonometry**

**Specific Outcome:**

1. Develop and apply the primary trigonometric ratios (sine, cosine, tangent) to solve problems that involve right triangles.
Unit 2 – Algebra & Number

This unit will cover chapter 3 and 4 in “Foundations & Pre-Calculus”

Chapter 3 – Factors & Products

Specific Outcomes:

1. Demonstrate an understanding of factors of whole numbers by determining the:
   - Prime factors
   - Greatest common factor
   - Least common multiple
   - Square root
   - Cube root
2. Demonstrate an understanding of the multiplication of polynomial expressions (limited to monomials, binomials and trinomials), concretely, pictorially and symbolically.
3. Demonstrate an understanding of common factors and trinomial factoring, concretely, pictorially and symbolically

Chapter 4 – Roots & Powers

Specific Outcomes:

1. Demonstrate an understanding of irrational numbers by:
   - Representing, identifying and simplifying irrational numbers
   - Ordering irrational numbers
2. Demonstrate an understanding of powers with integral and rational exponents.
Unit 3 – Relations & Functions

This unit will cover chapters 5, 6 and 7 in “Foundations & Pre-Calculus 10”

Chapter 5 – Relations & Functions

Specific Outcomes:

1. Interpret and explain the relationships among data, graphs and situations.
2. Demonstrate an understanding of relations and functions.
3. Describe and represent linear relations, using:
   - Words
   - Ordered pairs
   - Tables of values
   - Graphs
   - Equations
4. Determine the characteristics of the graphs of linear relations, including the:
   - Intercepts
   - Slope
   - Domain
   - Range

Chapter 6 – Linear Functions

Specific Outcomes:

1. Demonstrate an understanding of slope with respect to:
   - Rise and run
   - Line segments and lines
   - Rate of change
   - Parallel lines
   - Perpendicular lines
2. Relate linear relations expressed in:
   - Slope–intercept form \(y = mx + b\)
   - General form \((Ax + By + C = 0)\)
   - Slope–point form \(y - y_1 = m(x - x_1)\)
   to their graphs.
Chapter 7 - Systems of Linear Equations

Specific Outcomes:

1. Determine the equation of a linear relation, given:
   - A graph
   - A point and the slope
   - Two points
   - A point and the equation of a parallel or perpendicular line to solve problems
2. Represent a linear function, using function notation
3. Solve problems that involve systems of linear equations in two variables, graphically and algebraically.