



COURSE OUTLINE: Pre-Calculus 12, Year 2018-2019

Teacher:

Mr. Amory KC Wong

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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: polynomials, rational functions, composition of functions, exponentials, logarithms, trigonometric functions, relations and functions, permutations, combinations, binomial theorem, and conics.

Big Ideas:

- Many functions are related through inverse operations.
- Analyzing the characteristics of functions allows us to solve equations, and model and understand relationships.
- Transformations of shapes extend to functions in all of their representations.
- Geometrical thinking and visualization can be used to explore conics and functions.

Curricular Competencies:

Reasoning and analyzing

- Use reasoning and logic to analyze and apply mathematical ideas.
- Estimate reasonably.
- Demonstrate fluent and flexible thinking of number.
- Use tools or technology to analyze relationships and test conjectures.
- Model mathematics in contextualized experiences.

Understanding and solving

- Develop, demonstrate, and apply conceptual understanding of mathematical ideas.
- Visualize to explore and illustrate mathematical concepts and relationships.
- Apply flexible strategies to solve problems in both abstract and contextualized situations.
- Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures.

Communicating and representing

- Communicate mathematical thinking in many ways.
- Use mathematical vocabulary and language to contribute to mathematical discussions.
- Represent mathematical ideas in a variety of ways.
- Explain and justify mathematical ideas.

Connecting and reflecting



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- Reflect on mathematical thinking.
- Use mathematics to support personal choices.
- Connect mathematical concepts to each other and to other areas and personal interests.
- Incorporate First Peoples worldviews and perspectives to make connections to
- mathematical concepts.

Course Content for Term 1:

- Chapter 1 – Polynomial Expressions and Functions
- Chapter 2 – Radical and Rational Functions
- Chapter 3 – Transforming Graphs of Functions

Course Content for Term 2:

- Chapter 4 – Combining Functions
- Chapter 5 – Exponential and Logarithmic Functions
- Chapter 6 – Trigonometry

Course Content for Term 3:

- Chapter 7 – Trigonometric Equations and Identities
- Chapter 8 – Permutations and Combinations
- Chapter 9 – Conics (time permitted)

General Assessment:

- Assessment will be based on chapter tests (60%) and homework (20%).
- The final exam will be worth 20%.
- Marks will be computed on a cumulative percentage basis.
- Students may earn bonus marks through extra work (conditions apply – see website)
- Students may re-write tests (conditions apply – see website)

Classroom resources:

- G. Davis, et al. Pre-Calculus 12. Pearson, 2012. (1st choice)

Resource Materials to be supplied by students:

- Ring binder with ample supply of paper
- Pencils, erasers, ruler, colored markers
- Graphing calculator (TI-83/84 Plus or Casio fx-9750/9860 recommended)
- Basic scientific calculator (TI-30XS or Casio fx-300ES Plus recommended)