

PRE-CALCULUS 12A

Bonar Law Memorial School

2021–2022

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TEXTS and RESOURCES

- Pre-Calculus 12 (McGraw-Hill Ryerson 2012)
- Mathematical Modeling Book 2 (Nelson 2004) and Book 3 (Nelson 2002)
- Mathematics: Principles and Process 11 and 12 (Nelson 1994)
- Pens, pencils, erasers, binder, loose leaf, scientific calculator and graph paper.

SYLLABUS

Unit 1 – Relations and Functions (RF): Develop algebraic and graphical reasoning through the study of relations. (ten weeks)

- RF1 – Demonstrate an understanding of the effects of horizontal and vertical translations on the graphs of functions and their related equations.
- RF2 – Demonstrate an understanding of the effects of horizontal and vertical stretches on the graphs of functions and their related equations.
- RF3 – Apply translations and stretches to the graphs and equations of functions.
- RF4 – Demonstrate an understanding of the effects of reflections on the graphs of functions and their related equations, including reflections through the x -axis, y -axis, line $y = x$.
- RF5 – Demonstrate an understanding of inverses of relations.
- RF6 – Graph and analyze radical functions (limited to functions involving one radical).
- RF7 – Demonstrate an understanding of exponential functions.
- RF8 – Demonstrate an understanding of logarithms.
- RF9 – Graph and analyze exponential and logarithmic functions.
- RF10 – Demonstrate an understanding of the product, quotient and power laws of logarithms.
- RF11 – Solve problems that involve exponential and logarithmic equations.

Unit 2 – Trigonometry (T): Develop Trigonometric Reasoning. (six weeks)

- T1 – Demonstrate an understanding of angles in standard position expressed in degrees and radians.
- T2 – Develop and apply the equation of the unit circle.
- T3 – Solve problems, using the six trigonometric ratios for angles expressed in radians and degrees.
- T4 – Graph and analyze the trigonometric functions sine, cosine and tangent to solve problems.
- T5 – Solve, algebraically and graphically, first and second degree trigonometric equations with the domain expressed in degrees and radians.
- T6 – Prove trigonometric identities, using reciprocal identities, quotient identities, Pythagorean identities, sum or difference identities (restricted to sine, cosine and tangent), double-angle identities (restricted to sine, cosine and tangent).

EVALUATION

Your **final grade** will be based on the following scheme:

- Semester mark 70%
- Final Exam (January 2022) 30%

Semester mark will be calculated based on the following scheme:

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|---|-----|--------------------------------------|
| • Tests and Quizzes | 85% | (translates to 59.5% of final grade) |
| (1 quiz every 1–2 weeks and 1 test every 2–3 weeks) | | |
| • In-Class Assignments | 10% | (translates to 7% of final grade) |
| (1 assignment every 2–3 weeks) | | |
| • Homework | 5% | (translates to 3.5% of final grade) |

Students must obtain a minimum mark of 60% to receive credit for this course.

Please note: According to the BLMS Exam Incentive, if you have earned a Semester mark $> 85\%$ in Pre-Calculus 12A, the final grade may also be computed by weighting the exam to be 15%, 30%, or 50%, and whichever scheme works in the student's favour will be recorded as the final grade.

Absenteeism and Marks

A legitimate written excuse from a parent or guardian for illness or medical appointments will be required to circumvent the penalization of marks due to the lateness of an assignment or a test. See BLMS Assignment Tardiness Policy.

This is an **elective** senior level Mathematics course. The course is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into post-secondary programs that require the study of theoretical calculus. Since the pace of this course will be rapid, students will be expected to maintain excellent attendance and are solely responsible for all missed work.

EXPECTATIONS

- You are expected to be in class on time each day with all your materials.
(these include: pen, pencil, paper, worksheets and scientific calculator)
- You are expected to treat others with respect and dignity. You are expected to contribute to a positive learning environment.
- You are expected to work the entire period to the best of your ability.
- This course will include in-class assignments (open book) that will be completed individually only during class time. Homework will also be assigned on a regular basis and students will be expected to have it completed at the beginning of each class. **THIS WILL BE VERIFIED ON RANDOM DAYS!**
- When you miss a class it is **your** responsibility to get caught up on your own time. This means you may have to call a classmate at home to receive the work missed or you may have to make arrangements to stay for extra help.
- If you miss a test or an in-class assignment you must write it when you return to school at a time arranged by the teacher.
- **ALL WORK** must be handed in and **ALL TESTS** must be written.
- If at **any** time a student is having difficulty, **extra help** is available upon request. Students are **always** welcome for extra help. I am available during lunch hour and after school.

~ If All You Do Is Watch Someone Else Do Mathematics, All You Will Become Good At Is Watching Someone Else Do Mathematics. ~



.....Old Math Proverb