PRE–CALCULUS 12B

Bonar Law Memorial School
2021–2022
Mr. B. Lynch
E–mail: bradley.lynch@nbed.nb.ca

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 – Analyze arithmetic sequences and series to solve problems.
RF2 – Analyze geometric sequences and series to solve problems.
RF3 – Demonstrate an understanding of factoring polynomials of degree greater than 2 (limited to polynomials of degree ≤ 5 with integral coefficients).
RF4 – Graph and analyze polynomial functions (limited to polynomial functions of degree ≤ 5).
RF5 – Graph and analyze reciprocal functions (limited to the reciprocal of linear & quadratic functions).
RF6 – Graph and analyze rational functions (limited to numerator and denominators that are monomials, binomials or trinomials).
RF7 – Demonstrate an understanding of operations on, and compositions of, functions.
RF8 – Assemble a function toolkit.

Unit 2 – Permutations, Combinations and Binomial Theorem (PCB): Develop algebraic and numeric reasoning that involves combinatorics. (two weeks)

PCB1 – Apply the fundamental counting principle to solve problems.
PCB2 – Determine the number of permutations of n elements taken r at a time to solve problems.
PCB3 – Determine the number of combinations of n different elements taken r at a time to solve problems.
PCB4 – Expand powers of a binomial in a variety of ways, including using the binomial theorem (restricted to exponents that are natural numbers).

Unit 3 – Limits (L): Develop an understanding of limits. (four weeks)

L1 – Determine the limit of a function at a point both graphically and analytically.
L2 – Explore one–sided limits graphically and analytically.
L3 – Analyze the continuity of a function.
L4 – Explore limits which involve infinity.

EVALUATION

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

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

<u>Semester mark</u> will be calculated based on the following scheme:

- 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.

<u>Please note:</u> According to the BLMS Exam Incentive, if you have earned a Semester mark > 85% in Pre–Calculus 12B, 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.

<u>Absenteeism and Marks</u>

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 <u>**elective**</u> 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 <u>**your**</u> 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.
- <u>**ALL WORK**</u> must be handed in and <u>**ALL TESTS**</u> must be written.
- If at <u>**any**</u> time a student is having difficulty, <u>**extra help**</u> is available upon request. Students are <u>**always**</u> welcome for extra help. I am available at lunch hour and after school.

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~ Few of us know what we are capable of doing…
                             We have never pushed ourselves hard enough to find out. ~

– Alfred A. Montapert