

## Matthew Halton High School Math 30-2 Course Outline

- Spring 2021
- **Instructor:** Colton Garner ([garnerc@lrsd.ab.ca](mailto:garnerc@lrsd.ab.ca))
- 5 credits
- Room 209
- Block 1 everyday

### Who should take the Mathematics-2 course sequence?

- Mathematics-2 is designed for students who want to attend a university, college, or technical institute after high school, but do not need calculus skills.
  - If you want to study at the post-secondary level in fields such as arts programs, civil engineering technology, medical technologies, or some apprenticeship programs, you should take Mathematics-2. This sequence will fulfill most high-school students' needs.
- You should always check the most up-to-date information on post-secondary mathematics entrance requirements, which is available on the Alberta Learning Information Service (ALIS) website and directly from the institutions themselves.

### **Course Content**

The learner outcomes for Math 30-2 (as outlined later in the course outline) will be covered by studying four main topics.

- Topic 1: Logical Reasoning
  - Puzzles and Games, Set Theory
- Topic 2: Probability
  - Odds, Mutually Exclusive and Non-Mutually Exclusive Events, Probability of Two Events, Fundamental Counting Principle, Permutations, Combinations
- Topic 3: Relations and Functions
  - Rational Expressions, Rational Equations, Logarithms, Exponential Equations, Exponential and Logarithmic Functions, Polynomial Functions, Sinusoidal Functions
- Topic 4: Mathematics Research Project

### **Resources**

- **Workbook:** Foundations of Mathematics 12 (Absolute Value Publications)  
Students are strongly encouraged to purchase the workbook for \$22 cash. They get to keep the book and write in it. It is extremely worth the money for each student. If purchasing a workbook is a problem please contact the teacher.
- **Textbook:** Principles of Mathematics 12 (Nelson)

## ***Diploma Exam Information***

- This year will be different from previous years as students have the choice to write Diploma Exams. This is done on an individual basis and it is preferred that each student discuss this with school administration. Therefore if a student does not write a math 30-2 diploma exam they will write a final exam in place of it. The final exam will be school based and created by the teacher. Date is still to be determined.
- Each student's final grade will be calculated as follows:
  - o Teacher Awarded Mark: 70%
  - o Diploma exam / final exam: 30%

## ***Evaluation***

Teacher awarded marks will be calculated as follows (subject to change):

Logic and Reasoning	10%
Permutations and Combinations	16%
Probability	16%
Exponents and Logarithms	16%
Polynomial, Sinusoidal, Exponential & Logarithmic Functions	16%
Rational Expressions and Equations	16%
Cumulative Exams	10%

## ***Expectations***

- Students are required to have access to a graphing calculator for use throughout the course. It is important that this calculator is used throughout high school so that students are familiar with the calculator functions before writing the diploma exam in grade 12. While Alberta Education allows the use of any graphing calculator from the approved list on the diploma exam (see below), **students are strongly encouraged to use a calculator from the Texas Instruments Series (particularly the TI-84)** as this is the calculator that will be demonstrated during class instruction. The current list of approved calculators, and the Alberta Education diploma exam calculator policy can be found at [http://education.alberta.ca/media/6902701/06-dip-gib-2014-15\\_using-calculators\\_computers.pdf](http://education.alberta.ca/media/6902701/06-dip-gib-2014-15_using-calculators_computers.pdf)
  - \*\*\*Students are **NOT** permitted to use cell phones, ipods, or other personal devices as calculators in class, on exams, or on the diploma exam.
- Use of the TI-Nspire calculator is **STRONGLY** discouraged.
- Use of personal electronic devices, such as ipods, cell phones, gaming devices, tablets, ipads, etc., is **NOT** permitted in class without prior permission.

- One Classroom Rule - RESPECT
  - For Self
  - For Others (Classmates, Teacher, Custodial and Other Staff)
  - For the Classroom

## ***Learning Outcomes***

Math 30-2 comprises the following learner outcomes as outlined in the *Mathematics Program of Studies* set forth by *Alberta Learning*.

**Strand: Logical Reasoning** – Develop logical reasoning.

**302-LR1 Puzzles and Games** – Analyze puzzles and games that involve numerical and logical reasoning, using problem-solving strategies.

**302-LR2 Set Theory** – Solve problems that involve the application of set theory.

**Strand: Probability** – Develop critical thinking skills related to uncertainty.

**302-P1 Odds** – Interpret and assess the validity of odds and probability statements.

**302-P2 Mutually Exclusive and Non-Mutually Exclusive Events** – Solve problems that involve the probability of mutually exclusive and non-mutually exclusive events.

**302-P3 Probability of Two Events** – Solve problems that involve the probability of two events.

**302-P4 Fundamental Counting Principle** – Solve problems that involve the fundamental counting principle.

**302-P5 Permutations** – Solve problems that involve permutations.

**302-P6 Combinations** – Solve problems that involve combinations.

**Strand: Relations and Functions** – Develop algebraic and graphical reasoning through the study of relations.

**302-RF1 Equivalent Forms of Rational Expressions** – Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials and binomials).

**302-RF2 Operations on Rational Expressions** – Perform operations on rational expressions (limited to numerators and denominators that are monomials and binomials).

**302-RF3 Rational Equations** – Solve problems that involve rational equations (limited to numerators and denominators that are monomials and binomials).

**302-RF4 Laws of Logs** – Demonstrate an understanding of logarithms and the laws of logarithms.

**302-RF5 Exponential Equations** – Solve problems that involve exponential equations.

**302-RF6 Exponential and Logarithmic Functions** – Represent data, using exponential and logarithmic functions, to solve problems.

**302-RF7 Polynomial Functions** – Represent data, using polynomial functions (of degree less than or equal to 3), to solve problems.

**302-RF8 Sinusoidal Functions** – Represent data, using sinusoidal functions, to solve problems.

**Strand: Mathematics Research Project** – Develop an appreciation of the role of mathematics in society.

**302-MRP1 Research Project** – Research and give a presentation on a current event or an area of interest that involves mathematics.