## HIGH SCHOOL MATHEMATICS COURSE SEQUENCES



Alberta's Kindergarten to Grade 12 mathematics program integrates current research and developments in learning and teaching.

The mathematics programs of study were developed in collaboration with teachers, administrators, parents, business representatives, post-secondary institutions.

The Grades 10-12 Mathematics Program was designed to be flexible and to support student needs.

Whether students plan on pursuing further studies or entering the workforce directly, the revised Mathematics Program is designed to help them develop the appropriate skills.

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A NUMBER OF OPTIONS

## HOW DO THE COURSES WORK?

The following chart shows how the courses relate to one another and what options students will have as they progress through their high school career.

## Please note:

Mathematics 10C is for students who want to take Mathematics-1, Mathematics-2, or just aren't sure yet.

Mathematics $\mathbf{1 0 - 3}$ is for students planning to enter the majority of trades or the workforce immediately after high school.

Mathematics 10-4 and 20-4, the Knowledge and Employability courses, have not changed.

Mathematics 31 has not changed. Mathematics 30-1 is a co-requ site fo Mathematics 31 .

A NUMBER OF OPTIONS

## HOW DO THE COURSES WORK?



## MATHEMATICS-1

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Mathematics-1 is designed for students who plan to apply for post-secondary programs that may require calculus skills.

If they want to enter a post-secondary program such as engineering, mathematics, sciences, some business studies, or other programs that require advanced math skills, they should take Mathematics-1.

The Mathematics 30-1 is a co-requisite for Mathematics 31 and may be required for post-secondary calculus courses.

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.

## WHAT WILL BE TAUGHIT IN THIS GOURSE SEQUENGE?

The concept of function in-depth, including quadratic, radical, polynomial, rational, trigonometric, exponential and logarithmic functions.

Knowledge of trigonometry will be extended to include Sine and Cosine Laws to solve any triangle.

Introduction to counting techniques involving permutations and combinations; these are the basis for the Binomial Theorem, which has important applications in the areas of calculus and statistics.

## MATHEMATICS -1

WHATI IF STUDENITS INTERESTS OR FUTURE PLANS CHANGE?

After completing Mathematics 20-1, students can continue on to Mathematics 30-1.
If they decide Mathematics $\mathbf{3 0 - 2}$ is more appropriate for their future goals, they can take that course instead.

Students can also choose to take Mathematics 30-3.


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 they want to study at the post-secondary level in fields such as arts programs, civil engineering technology, medical technologies, or some apprenticeship programs, they should take Mathematics-2. This sequence will fulfill most high-school students' needs.

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.

Logical reasoning techniques, including inductive and deductive reasoning.
A variety of relations and functions, both graphically and algebraically, including quadratic, radical, polynomial, rational, sinusoidal, exponential and logarithmic functions.

Knowledge of trigonometry will be extended to include Sine and Cosine Laws to solve any triangle.

Introduction to counting techniques involving permutations and combinations.
A Mathematics Research Project, involving the collection and analysis of data in a mathematical area of interest in both Mathematics 20-2 and $30-2$ will be completed.

After completing Mathematics 20-2, students can continue and complete Mathematics 30-2.

If they decide that the $\mathbf{- 1}$ course sequence is more appropriate for their future plans, they can transition by taking Mathematics 20-1 and then 30-1. Or, they can take Mathematics 30-1 after successfully completing Mathematics $30-2$.

If they decide that Mathematics $\mathbf{3 0 - 3}$ is more useful for them, they can take that course instead of Mathematics 30-2.


Mathematics-3 is designed for students who want to learn the mathematics needed to enter most trades or want to enter the workforce after high school.

Most apprenticeship training programs in Alberta will recommend students successfully complete Mathematics 30-3. However, a small number of apprenticeship training programs may require students to complete the -2 course sequence in order to meet the mathematics entrance level competencies for those trades. Further information regarding apprenticeships can be found at http://www.advancededandtech.gov.ab.ca/planning.aspx.

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.

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MATHEMATICS-3
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Students will use SI and imperial measures and apply them in 2-D and 3-D situations.

Knowledge of trigonometry will be extended to include Sine and Cosine Laws to solve problems.

Learn and apply spatial, proportional and logical reasoning to solve problems.
Explore financial topics including personal finance and basic small business operations.

Apply basic statistics and probability concepts to solve problems.

www.education.alberta.ca/math

explore

If a student develops new interests or post-secondary goals, they can transition to the $\mathbf{- 1}$ course sequence or $\mathbf{- 2}$ course sequence through Mathematics $\mathbf{1 0 C}$.

No matter what a student is planning to do after high school, Alberta Education has made sure that they will have the mathematical skills and knowledge that suit them.

Should a student's plans change, there is a mathematics course that will meet their needs.

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