



# Sturgeon Composite High School

## Mathematics 31

### COURSE OUTLINE



**PREREQUISITE:** *Mathematics 30 -1 65% is recommended*

**COREQUISITE:** *Mathematics 30 -1*

**TEXT:** *Calculus: A First Course*  
*McGraw-Hill Ryerson*

**COURSE MATERIALS:** *Graphing Calculator TI- 83+ or any other recognized by Alberta Education*  
*Three ring binder*  
*Graph Paper*  
*Loose leaf*  
*Pencils*

**COURSE CONTENT:**

There are four topics of required content that will be given approximately 80% of the instructional time.

1. *Pre-Calculus and Limits (required content)*
2. *Derivatives and Derivative Theorems (required content)*
3. *Applications of Derivatives (required content)*
4. *Integrals, Integral Theorems and Integral Applications (required content)*

*The remaining 20% of instructional time will be divided amongst three smaller topics of elective content.*

5. *Calculus of Exponential and Logarithmic Functions (elective content)*
6. *Volumes of Revolution (elective content)*
7. *Applications of Calculus to the Sciences and Economics (elective content)*

**EVALUATION:** *The final mark in Mathematics 31 will be based upon the following:*

**1. TERM WORK: 70%**

- |                            |     |
|----------------------------|-----|
| a) Exams                   | 70% |
| b) Quizzes and Assignments | 30% |

**2. FINAL EXAM: 30%**

**BEHAVIORAL EXPECTATIONS:** *As outlined in the Student Agenda and by the individual teacher.*

*Alberta Education Standards document: <http://education.alberta.ca/parents.aspx>*

# WHICH CLASS SHOULD I TAKE?

## Mathematics - 1

For students who plan to enter post-secondary programs such as engineering, mathematics, sciences, some business studies, or other programs that require advanced math skills. The sequence is a co-requisite for Mathematics 31 and may be required for post-secondary calculus courses.

## Mathematics - 2

For students wishing to study at the post-secondary level in diverse fields, including arts programs, some engineering and medical technologies (such as nursing), and some apprenticeship programs. This path will fulfill most students' needs. Mathematics-2 is designed with a great deal of flexibility, so that the student can switch sequences in Grade 11 or Grade 12 if his or her interests change.

## Mathematics - 3

For students who want to apprentice to a trade or enter the workforce directly after high school. It is designed to meet the entrance requirements for apprentices in most trades programs.

Please Note:

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

Mathematics 10-4 and 20-4 are the Knowledge and Employability courses that lead to a Certificate of High School Achievement instead of a High School Diploma.

Mathematics 31 is an introductory calculus course. Mathematics 30-1 is a pre-requisite or co-requisite for Mathematics 31.

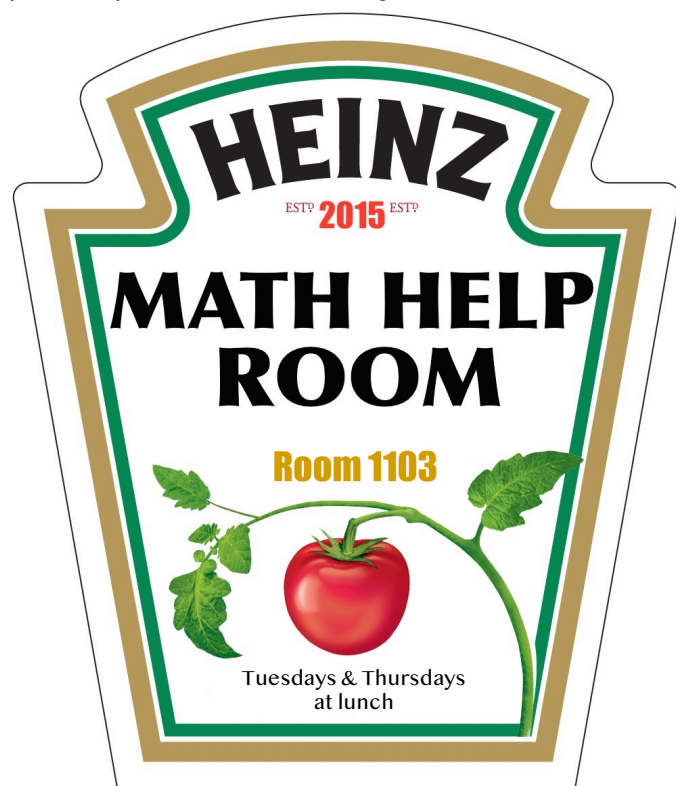
## It's not just about the mark...

Although a passing grade of 50% allows you to proceed to the next course in a sequence, one should also consider what interests them and what they would like to do at the end of high school.

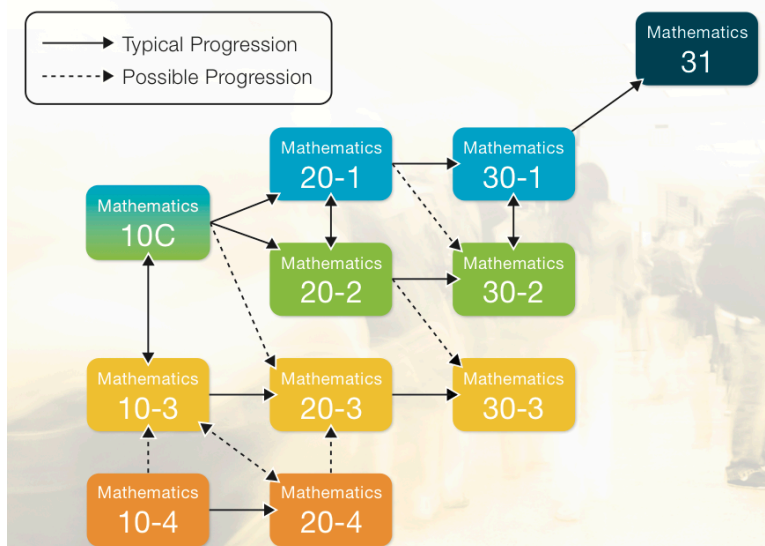
For example students with a grade of at least 50% in Mathematics 10C can take either Mathematics 20-1, 20-2, or 20-3. Their decision will depend on which course would best meet their interests and goals beyond high school. For more information on the courses and course sequences consult the Senior High School Fact Sheets. Similarly, a passing grade of 50% in Mathematics 10C allows you to proceed to Mathematics 20-1 but it does not necessarily mean that you are adequately prepared and have the strong foundational skills to take Mathematics 20-1 and be successful.

## Need A Little Help With Your Work?

The math department sponsors the "Heinz Room" every Tuesday at lunch for individual math help. Come in and **ketchup** if you're behind, before long you will truly be able to **relish** in better grades!



## Progression Through Course Sequences



## What If I Fail A Course? (Retro-Active Credits)

Students not achieving at least 50% in a course may repeat the course or, provided they received at least 40% and with the approval of the school principal, may transfer into a less challenging academic course. Students who successfully complete the next higher-level course in this alternative sequence will be granted credit for the prerequisite course in that alternative sequence.

Possible Routes:

- 40% to 49% in Mathematics 10C and successfully complete Mathematics 20-3 will receive retro-active credits in Mathematics 10-3.
- 40% to 49% in Mathematics 10-3 and successfully complete Mathematics 20-4 will receive retro-active credits in Mathematics 10-4.
- 40% to 49% in Mathematics 20-1 and successfully complete Mathematics 30-2 will receive retro-active credits in Mathematics 20-2.
- 40% to 49% in Mathematics 20-2 and successfully complete Mathematics 30-3 will receive retro-active credits in Mathematics 20-3.

## Do I Need a Graphing Calculator?

Students taking Mathematics 10C, 20-1, 20-2, 30-1 and 30-2 require the enhanced features provided by a graphing calculator.

Students in Mathematics 10-3, 20-3 and 30-3 do not require a graphing calculator. A scientific calculator is sufficient for all concepts covered in the Mathematics - 3 program.

## Approved Graphing Calculators

Casio

- fx 9750 G Plus, fx 9750 GII, fx 9860 GII

Hewlett-Packard

- HPPrime

Sharp

- EL-9900, EL-9600, EL-9600C

Texas Instruments

- TI-83 Plus, TI-84 Plus, TI-84 Plus Silver,
- TI-84 Plus Pocket SE
- TI-84 Plus C Silver, TI-84 Plus CE
- TI-83, TI-83 Plus Silver
- TI-nspire (Touchpad or Clickpad)

## There's More On A Page Than First Appears...

You will see these symbols on several department documents. Use your smart phone or tablet to access supplemental embedded "virtual reality" content.



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