



**Matthew Halton High School
Math 20-2
Course Outline, Fall 2019
Room 209**

General Information

- Instructor - C.Garner (garnerc@lrsd.ab.ca) - B.Whitford (whitfordb@lrsd.ab.ca)

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 20-2 (as outlined later in the course outline) will be covered by studying six main topics.

- Topic 1: Measurement
 - Rates, Scale Diagrams, Scale Factors of 2D Shapes and 3D Objects
- Topic 2: Geometry
 - Geometric Proofs, Angles and Triangles, Sine and Cosine Law
- Topic 3: Number and Logic
 - Inductive and Deductive Reasoning, Puzzles and Games, Radicals, Radical Equations
- Topic 4: Statistics
 - Normal Distributions, Interpreting Data
- Topic 5: Relations and Functions
 - Quadratic Functions, Quadratic Equations

Resources

- Workbook: Foundations of Mathematics 11 (Absolute Value Publications)

- A workbook will be supplied for your use. If you want to **write-in and keep the workbook, you have the option of paying for it.** The workbook fee is only \$20. If you do not pay for the workbook, you are expected to return it at the end of the semester in good condition.
- Textbook: Principles of Mathematics 11 (Nelson)
- Additional examples and practice questions can be found in the textbook.

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

***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 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

Evaluation

Final grades will be calculated as follows:

Geometry (G2, G3)	10%
Measurement (M1, M2, M3)	15%
Radicals (NL3, NL4)	15%
Statistics (S1, S2)	10%
Quadratics (RF1, RF2)	15%
Reasoning (NL1, NL2)	10%
Final Exam	25%

Timeline

Timeline is approximate and therefore, subject to change.

September 2019

S	M	T	W	T	F	S	
		3	4	5	6	7	
8	9	10	11	12	13	14	Radicals
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	
29	30						Quadratics

October 2019

S	M	T	W	T	F	S	
		1	2	3	4	5	
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	Measurement
20	21	22	23	24	25	26	
27	28	29	30	31			ELW

November 2019

S	M	T	W	T	F	S	
					1	2	
3	4	5	6	7	8	9	Statistics
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	

December 2019

S	M	T	W	T	F	S	
1	2	3	4	5	6	7	Geometry
8	9	10	11	12	13	14	
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	Xmas Break
29	30	31					

January 2019

S	M	T	W	T	F	S	
			1	2	3	4	
5	6	7	8	9	10	11	Reasoning
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	Review
26	27	28	29	30	31		

Outcomes

Measurement

- 202-M1 Rates
- 202-M2 Scale Diagrams
- 202-M3 Scale Factors of 2D
Shapes and 3D Objects

Statistics

- 202-S1 Normal Distributions
- 202-S2 Interpreting Data

Quadratics

- 202-RF1 Quadratic Functions
- 202-RF2 Quadratic Equations

Radicals

- 202-NL3 Radicals
- 202-NL4 Radical Equations

Geometry

- 202-G2 Angles and Triangles
- 202-G3 Sine and Cosine Law

Reasoning

- 202-NL1 Inductive and
Deductive Reasoning
- 202-G1 Geometric Proofs
- ***202-NL2 Puzzles and Games

Mathematics Research Project

- 202-MRP1 Research

*** Puzzles and Games will be covered all semester and assessed at the end of the term.

Learning Outcomes

Math 20-2 is comprised of the following learner outcomes as outlined in the *Mathematics Program of Studies* set forth by *Alberta Learning*.

Strand: Measurement

202-M1 Rates – Solve problems that involve the application of rates.

202-M2 Scale Diagrams – Solve problems that involve scale diagrams, using proportional reasoning.

202-M3 Scale Factors of 2D Shapes and 3D Objects – Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D shapes and 3-D objects.

Strand: Geometry

202-G1 Geometric Proofs – Derive proofs that involve the properties of angles and triangles.

202-G2 Angles and Triangles – Solve problems that involve properties of angles and triangles.

202-G3 Sine and Cosine Law – Solve problems that involve the cosine law and the sine law, excluding the ambiguous case.

Strand: Number and Logic

202-NL1 Inductive and Deductive Reasoning – Analyze and prove conjectures, using inductive and deductive reasoning, to solve problems.

202-NL2 Puzzles and Games – Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies.

202-NL3 Radicals – Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands (limited to square roots).

202-NL4 Radical Equations – Solve problems that involve radical equations (limited to square roots or cube roots).

Strand: Statistics

202-S1 Normal Distributions – Demonstrate an understanding of normal distribution, including: standard deviation and z-scores.

202-S2 Interpreting Data – Interpret statistical data, using: confidence intervals, confidence levels, and margin of error.

Strand: Relations and Functions

202-RF1 Quadratic Functions – Demonstrate an understanding of the characteristics of quadratic functions, including: vertex, intercepts, domain and range, and axis of symmetry.

202-RF2 Quadratic Equations – Solve problems that involve quadratic equations.

Strand: Mathematics Research Project

202-MRP1 Research – Research and give a presentation on a historical event or an area of interest that involves mathematics.