

## Course Outline Review Signature Page

Date of Review: 2013-01-14

Semester: Winter 2013

Course name & number: Math 20-2 F

Program Name: College Preparation

Instructor submitting the outline for review (print name): Maureen Clarke

### Chairperson Review

I Margo Vermillion (Print Name) verify that I have reviewed this course outline, and it meets all the requirements of the College's new course outline policy.

Chairperson Signature: Margo Vermillion

*\*Note: outlines not meeting policy guidelines must be returned to the instructor, revised and resubmitted to the Chairperson for review. Responsibility: Chairperson.*

### Dean's Review

I \_\_\_\_\_ (print name) verify that I have reviewed this course outline, and it meets all the requirements of the College's new course outline policy. Signature: \_\_\_\_\_

*\*Note: outlines not meeting policy guidelines, after the Chairperson verifies that it does, must be returned to the Chairperson. The Chair will work one-on-one with the instructor to ensure the outline is revised and resubmitted for review to the Dean. Responsibility: Dean.*

Students in each course must be given a policy-compliant course outline. If a student is given an outline that proved inadequate, the Chairperson will ensure that the revised copy is given to the student and that the learner understands that that copy is the valid outline. The policy-compliant copy will be posted on the course website if one exists; old or non-compliant copies will be removed.

Electronic copies [pdf] of each approved course outline, with this attached signature page, must be submitted by the Dean to the Registrar by the second week of the applicable semester. These will be held by the Registrar.

Course outlines must be submitted for review on semester by semester basis. Stale-dated outlines, recycled from a previous term without review and updating, are immediately declined.

EMAILED

KEYANO COLLEGE

FORT CHIPEWYAN

COLLEGE PREPARATION PROGRAM

WINTER 2012/2013

Room 114

MATHEMATICS 20-2

Lecture F

Instructor: Maureen Clarke

Office Hours: Monday: 1:00 - 1:50 p.m.

Tuesday: 2:00 - 2:50 p.m.

Thursday: 9:30 - 10:20 a.m. & 11:30 a.m. - 12:20 p.m.

Friday: 9:30 - 10:20 a.m.

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E-mail: [maureen.clarke@keyano.ca](mailto:maureen.clarke@keyano.ca)

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Course Hours: Monday: 8:30 - 9:20 a.m. & 11:30 a.m. - 12:20 p.m.

Tuesday: 1:00 - 1:50 p.m.

Wednesday: 1:00 - 1:50 p.m.

Friday: 8:30 - 9:20 a.m.

Hours of Instruction: 6 50-minutes classes per week

Length of Course: 16 weeks

Prerequisite: Math 20-2, Math 10-1, Math 10-C or permission of the Program Chair

Text: Principles of Mathematics 11: Alberta (Nelson)  
ISBN: 978-0-17-650412-0

## Important Dates for Academic Schedule:

Jan. 1	College closed – New Year's Day
Jan. 7	Winter semester begins – Orientation Day
Jan. 8	First day of classes for students
Jan. 11	Last day to add classes Winter semester fees due
Jan. 18	Last day to drop course(s) for academics
Feb. 15	Last day to withdraw from course(s) with 50% refund of tuition fees
Feb. 18	College closed – Family Day
Feb. 25 – Mar. 1	Reading Week
Mar. 5	Aboriginal Day
Mar. 8	Last day to withdraw without academic penalty
Mar. 29	College closed – Good Friday
April 1	College closed – Easter Monday
April 18	Last day of class
April 19 – 23	Final Exams
April 26	Graduation – Fort Chipewyan

## Course Description:

Topics covered include right angle trigonometry; applications involving rates and ratios (scale relationships of 2D and 3D shapes); manipulation and application of formulas; apply the power laws on integral and rational exponents; evaluate absolute values; perform all operations (addition, subtraction, multiplication, division) on radicals; solve radical equations; graph and apply quadratic functions; solve quadratic equations; spatial reasoning. Extensions to the core materials include a Business/Arts Prep module involving the interpretation and analysis of statistical data and the utilization of inductive and deductive reasoning to prove conjectures and a Trades prep module for further exploration of 3D objects (model, draw, describe, scale diagrams, etc) and the creation and interpretation of circle and line graphs.

## Goals:

The main goals of mathematics education are to prepare students to

- solve problems
- communicate and reason mathematically
- make connections between mathematics and its applications
- become mathematically literate
- appreciate and value mathematics
- make informed decisions as contributors to society

## General Math Program Outcomes:

Students will

- develop spatial sense and proportional reasoning
- develop algebraic reasoning and number sense
- develop algebraic and graphical reasoning through the study of relations

## Course Outcomes:

Upon successful completion of Math 20-2, students will be able to

- solve problems that involve the application of rates
- solve problems that involve scale diagrams using proportional reasoning
- demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2D shapes and 3D objects
- derive proofs that involve the properties of angles and triangles
- solve problems that involve properties of angles and triangles
- solve problems that involve the cosine law and the sine law, excluding the ambiguous case
- analyze and prove conjectures using inductive and deductive reasoning to solve problems
- analyze puzzles and games that involve spatial reasoning using

problem solving strategies

- solve problems that involve operations on radicals and radical expressions with numerical and variable radicands (limited to square roots)
- solve problems that involve radical equations (limited to square roots or cube roots)
- demonstrate an understanding of normal distribution, including:
  - standard deviation
  - z-scores
- interpret statistical data using:
  - confidence intervals
  - confidence levels
  - margin of error
- demonstrate an understanding of the characteristics of quadratic functions, including:
  - vertex
  - intercepts
  - domain and range
  - axis of symmetry
- solve problems that involve quadratic equations
- research and give a presentation on a historical event of area of interest that involves mathematics

## Course Content and Proposed Schedule:

### Chapter 1: Inductive and Deductive Reasoning

- 1.1. Making conjectures: inductive reasoning
- 1.2. Exploring the validity of conjectures
- 1.3 Using reasoning to find a counter example to a conjecture
- 1.4. Proving conjectures: deductive reasoning
- 1.5. Proofs that are not valid
- 1.6. Reasoning to solve problems
- 1.7. Analyzing puzzles and games

## Chapter 2: Properties of Angles and Triangles

- 2.1. Exploring parallel lines
- 2.2. Angles formed by parallel lines
- 2.3. Angle properties in triangles
- 2.4. Angle properties in polygons
- 2.5. Exploring congruent triangles
- 2.6. Proving congruent triangles

## Chapter 3: Acute Triangle Trigonometry

- 3.1. Exploring side-angle relationships in acute triangles
- 3.2. Proving and applying the Sine Law
- 3.3. Proving and applying the Cosine Law
- 3.4. Solving triangles using acute triangles

## Chapter 4: Radicals

- 4.1. Mixed and entire radicals
- 4.2. Adding and subtracting radicals
- 4.3. Multiplying and dividing radicals
- 4.4. Simplifying algebraic expressions involving radicals
- 4.5. Exploring radical equations
- 4.6. Solving radical equations

## Chapter 5: Statistical Reasoning

- 5.1. Exploring data
- 5.2. Frequency tables, histograms, and frequency polygons
- 5.3. Standard deviations
- 5.4. The normal distribution
- 5.5. Z-scores
- 5.6. Confidence intervals

## Chapter 6: Quadratic functions

- 6.1. Exploring quadratic relations
- 6.2. Properties of graphs of quadratic functions
- 6.3. Factored form of a quadratic function
- 6.4. Vertex form of a quadratic function

## 6.5. Solving problems using quadratic function models

### Chapter 7: Quadratic Equations

- 7.1. Solving quadratic equations by graphing
- 7.2. Solving quadratic functions by factoring
- 7.3. Solving quadratic equations using the Quadratic Formula
- 7.4. Solving problems using quadratic equations

### Chapter 8: Proportional Reasoning

- 8.1. Comparing and interpreting rates
- 8.2. Solving problems that involve rates
- 8.3. Scale diagrams
- 8.4. Scale factors and areas of 2D shapes
- 8.5. Similar objects: Scale models and scale diagrams
- 8.6. Scale factors and 3D objects

REVIEW                      April 16 - 18

FINAL EXAM                TBA

### EVALUATION:

Attendance	5%
Assignments	35 %
Tests and Quizzes	15%
Midterm	20%
Final Exam	25%
Total	100 %

## GRADE POINT:

Descriptor	Alpha	4.0 Scale	Percentage
Excellent	A <sup>+</sup>	4.0	91 – 100
	A	3.8	85 – 90
	A <sup>-</sup>	3.7	80 – 84
Good	B <sup>+</sup>	2.7	76 – 79
	B	2.7	73 – 75
	B <sup>-</sup>	2.7	70 – 72
Satisfactory	C <sup>+</sup>	2.3	67 – 69
	C	2.0	64 – 66
PROGRESSION			
PASS	C <sup>-</sup>	1.7	60 – 63
Poor	D <sup>+</sup>	1.3	57 – 59
Minimum Pass	D	1.0	50 – 56
Failure	F	0.0	0 – 49

## Overall Expectations:

Please turn off cell phones, MP3 players, and any other electronic devices during class time.

Assignments: Assignments must be dated and submitted to the instructor no later than 4:00 on the day on which the assignment is due. Late assignments will be accepted but marks will be docked at 2% per day to a maximum of 10%. Exemptions for assignments may be granted in exceptional circumstances beyond the control of the student. A 5% bonus mark will be given to all assignments that are turned in on time.



**Punctuality:** Punctuality is important. Students are expected to be ready to begin work when the class is scheduled to begin. Therefore, students are encouraged to arrive at class a minute or two early so that they may organize their working materials by starting time. Late arrival is detrimental to the student and inconsiderate of the instructor and other students. Arrival in good time is associated with success and is considerate of the instructor and other students.

**Attendance:** Students are expected to attend all classes. Should a student miss a class for any reason it is his/her responsibility to cover the work missed and be ready for the next class.

If you want to be assured of success in this course, the following three things will most often grant that to you.

1. Attend every day and get involved in the class. When you can't attend, cover the work done anyway.
2. Ask a question when you do not understand the work and keep asking until you get an explanation you can understand. Feel free to ask for help from the Skill Center, your peers, and the instructor. Remember that the Skill Center is for "support" and not to "teach" you course content due to lack of attendance.
3. Do all of the daily work given or give it your very best effort and get help with the parts you are unable to complete. For maximum mastery of the material, you, the student, should spend one to two hours working on problems outside of class.

## STUDENT RIGHTS AND RESPONSIBILITIES

Students should be aware of their rights and responsibilities as laid out in the Keyano College Credit Calendar 2012-2013. In order to "refrain from unduly disturbing, disrupting or otherwise interfering with studies ..."  
(KCCC, 2012-2013, p. 36) students should turn cell phones and pagers off when they come to class, and refrain from bringing children or other visitors to class.

## LEARNER ASSISTANCE PROGRAM (LAP)

If you have a documented disability or you think that you would benefit from some assistance from a Disabilities Counsellor, please call or visit the Disability Supports Office (780) 792 – 5608 to book an appointment (across from the library). Services and accommodations are intended to assist you in your program of study, while maintaining the academic standards of Keyano College. They can be of assistance to you in disclosing your disability to your instructor, providing accommodations, and supporting your overall success at Keyano College.

HAVE A GREAT SEMESTER!