College and Career Prep Department
Mathematics 10C Section A (Math 10C)
Fall 2013

MATH 10C
Mathematics 10C
6 credits, 16 weeks, 6 hours lecture

Topics covered include linear SI metric and Imperial measurement and conversions; surface area and volume of 3D objects; right triangle trigonometry; apply the power laws with integral and rational exponents; perform all operations (addition, subtraction, multiplication, division) on polynomials; factor polynomials; identify, describe, interpret and analyze relations and functions; evaluate functional notation; determine domain and range; graph and define linear relations; solve linear systems of two relations.
Alberta Education Course Equivalency: Math 10C
Prerequisite: AFM 009 or permission of the program chair

Instructor: Ryan Abel

Phone: 780-791-8948

Office: CC205P

E-Mail Address: ryan.abel@keyano.ca

Class Times/Location: Tuesday, 8:00 a.m. – 9:50 a.m. in S-218
Thursday, 3:00 p.m. – 4:50 p.m. in S-112
Friday, 2:00 p.m. – 3:50 p.m. in CC-224

Office Hours in Room CC-205P:

Day	Time
Monday	9:00 AM – 10:00 AM
Tuesday	2:00 PM – 3:00 PM
Wednesday	11:00 AM – 12:00 PM
Thursday	2:00 PM – 3:00 PM
Friday	9:00 AM – 10:00 AM

Required/Recommended Resources:

McGraw Hill Ryerson Mathematics 10 (Available at Keyano Bookstore for $78.71)
Scientific calculator or a graphing calculator
Geometry Set or ruler
Binder, lined paper, graph paper, pens/pencils

Evaluation:

Assignments	25%
Quizzes	5%
Tests	25%
Unit Projects (Top 3 at 5% each)	15%
Final Exam	30%
TOTAL	**100%**

For successful completion of this course, a minimum grade of 60% is required.

Keyano College Grading System (from Credit Calendar)

Descriptor	4.0 Grade Scale	Percentage Scale
Excellent	4.0	96% - 100%
	4.0	90 % - 95 %
	3.7	85 % - 89 %
Good	3.3	81 % - 84 %
	3.0	77 % - 80 %
	2.7	73 % - 76 %
Satisfactory	2.3	69 % - 72 %
	2.0	65 % - 68 %
Minimum Prerequisite	**1.7**	**60 % - 64 %**
Poor	1.3	55 % - 59 %
Minimum Pass	1.0	50 % - 54 %
Failure	0.0	0 % - 49 %

Academic Progression: Students successfully completing Math 10C may choose to proceed to Math 20-1 OR 20-2

"-1" Course Sequence

This course sequence is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into post-secondary programs that require the study of theoretical calculus; students planning to study mathematics or sciences programs such as engineering, mathematics, sciences, some business studies, or programs requiring advanced math skills. Topics include algebra and number; measurement; relations and functions; trigonometry; and permutations, combinations and binomial theorem. *This pre-calculus sequence should be attempted only by those completing Math 10C with a mark in excess of 70%.*

"-2" Course Sequence

This course sequence is designed to provide students with the mathematical understandings and critical-thinking skills identified for post-secondary studies in programs that do not require the study of theoretical calculus; students planning to attend post-secondary programs that are not math or science based; this path will fulfill most students' needs. Math-2 is designed with a great deal of flexibility, so that the student can switch sequences in Grade 11 or 12 if his or her interests change. Topics include geometry, measurement, number and logic, logical reasoning, relations and functions, statistics, and probability. *This sequence is most suitable for students entering Education, Nursing and Diploma programs. Students entering this sequence should have completed Math 10C with a mark in excess of 65%.*

"-3" Course Sequence

This course sequence is part of the new Alberta Program of Studies. The "-3" course sequence is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into the majority of trades and for direct entry into the work force. Topics of study will include finance, algebra, geometry, measurement, and number. This course will be delivered through projects, activities, and problems set in real world contexts, enabling students to make connections between high school math and the workplace.

Course Outcomes:

At the completion of the course, students will be able to:

- solve problems that involve SI and Imperial units of linear measurement
- apply proportional reasoning to problems that involve conversions between SI and Imperial units of measure
- solve problems, using SI and Imperial units, that involve the surface area and volume of 3-D objects, including right cones, right cylinders, right prisms, right pyramids and spheres
- develop and apply the primary trigonometric ratios to solve problems that involve right triangles
- demonstrate an understanding of powers with integral and rational exponents

- demonstrate an understanding of factors of whole numbers by determining the
    - Prime factors
    - Greatest common factor
    - Least common multiple
    - Square root
    - Cube root
- demonstrate an understanding of irrational numbers by
    - representing, identifying and simplifying irrational numbers
    - ordering irrational numbers
- demonstrate an understanding of the multiplication of polynomial expressions (limited to monomials, binomials and trinomials)
- demonstrate an understanding of common factors and trinomial factoring
- interpret and explain the relationships among data, graphs and situations
- demonstrate an understanding of relations and functions
- demonstrate an understanding of slope with respect to:
    - rise and run
    - line segments and lines
    - rate of change
    - parallel lines
    - perpendicular lines
- describe and represent linear relations, using
    - words
    - ordered pairs
    - table of values
    - graphs
    - equations
- represent a linear function, using functional notation
- determine the characteristics of the graphs of linear relations, including the:
    - intercepts
    - slope
    - domain
    - range
- relate linear relations expressed (in the following formats) to their graphs:
    - slope-intercept form ($y=mx+b$)
    - general form ($Ax+By+C=0$)

- slope-point form $(y-y_1=m(x-x_1))$

- determine the equation of a linear relation (given the information below) to solve problems
  - a graph
  - a point and the slope
  - two points
  - a point and the equation of a parallel or perpendicular line
- solve problems that involve systems of linear equations in two variables, graphically and algebraically

Additional Information:

Assignments/Projects/Tests/Exams:

- Assignments are due on the scheduled date. Late assignments will be subject to a 10% mark reduction per day to a limit of four business days, after which the assignment will receive a grade of zero.
- Weekends and holidays will be counted as 1 'business day' for the purposes of late mark calculation.
- Assignments are due at the beginning of class on the scheduled due date. Any assignments submitted beyond the start of class will be counted as late and mark deduction will apply.
- Technological issues are not considered valid grounds for late assignments.

Learner Assistance Program (LAP):

If you have been diagnosed with a learning disability in the past, or feel that you would benefit from some assistance from a disabilities counselor, please call 780-792-5608 to book an appointment. In order to provide effective service, students are advised to address learner assistance issues at the beginning of the semester. Services and accommodations are intended to assist students in the course, while maintaining the academic standards of Keyano College. The LAP can be of assistance to you in disclosing your disability to your instructor, receiving accommodations, and your overall success at Keyano College.

Attendance:

- Regular, punctual attendance is necessary for success at Keyano College and on the job after graduation. Students are responsible for attending all learning activities in their courses on a regular and punctual basis. Excessive absences can result in poor or failing grades.

- If you are going to be absent, please call (780-791-8948) and leave a voice mail (preferably in advance of the absence) or email me at ryan.abel@keyano.ca

- It is the student's responsibility to seek out missed assignments/tasks that were assigned during his/her absence. Your instructor encourages you to make use of assigned office hours for this purpose.

- Medical documentation (i.e. doctor's note, hospital bracelet) will be required for those students who have missed major assignments, tests, and activities and wish to be offered the opportunity to complete a makeup assignment(

Moodle:
Notes and other course materials covered in the course will be posted on Moodle, an online learning management system. Students are responsible for ensuring they are able to login and access documents. Students who are not able to access Moodle must inform the instructor immediately.

Academic Misconduct:
Plagiarism is defined as "taking and using or claiming the thoughts, writings, inventions, etcetera of another person as one's own". Taking the words or ideas of another person and stating them as your own is plagiarism. When it is necessary to borrow ideas from others, you must **give credit** to the lender. You may **never** use another student's work as your own. A**ssigned work or tests showing evidence of copying or plagiarism will receive a mark of zero**, the student will be given a verbal warning and notation will be placed on the student's file. Penalties for further offences may include dismissal from the course or college. Please ensure you submit **your own *original* work** and not the work of a tutor, peer, or other person (including an unknown person / website / online material) for assigned work.

Student Rights and Responsibilities:
By virtue of membership in the College's academic community, students accept a responsibility to understand and abide by the Academic Regulations stated in the Keyano College course calendar.

- Attend all your classes.
- Be on time and say for the full class time.
- Behave appropriately in class. Be respectful of all student learning.
- Come to class with the required books and materials.
- Complete homework on time.
- Write all tests/exams at the scheduled time.
- Read "Student Rights and Responsibilities" in the college calendar.
- ***Plagiarism*** – it is assumed that each student will do his or her own best work in order to get the full benefit from the learning experience. Work not completed by the student will receive a grade of 0. Please refer to the Credit Calendar

Important Dates:

FALL	Wednesday, September 4, 2013	• First day of classes
	Tuesday, September 10, 2013	• Last day to add course(s) for academic programs • Fall semester fees due
	Friday, October 11, 2013	• Last day to drop course(s) for academic programs
	Friday, February 15, 2013	• Last day to withdraw from course(s) with 50% refund of tuition fees
	Monday, October 14, 2013	• Thanksgiving (College closed)
	Wednesday, October 25, 2013	• Last day to withdraw from course(s) without academic penalty
	Monday, November 11, 2013	• Remembrance Day (College closed)
	Thursday, December 12, 2013	• Last day of classes for Academic Upgrading
	December 13-18, 2013	• Final Exams for Academic Upgrading
	December 20, 2013	• End of Fall semester for academic programs (Final Grades due to Registrar by 4:30 PM
	December 25 – January 1 2013/2014	• College closed for Christmas Break and New Year's Day
	Monday, January 6, 2014	• Winter semester begins for academic programs

Academic Schedule

Scroll down to page 8 of this document to review the college academic schedule:
http://www.keyano.ca/Academics/CreditCalendar

Course Topics/Schedule:

Unit	Topic
Unit 1: 4 weeks	Measurement
Unit 2: 4 weeks	Algebra and Numbers
Unit 3: 4 weeks	Relations and Functions
Unit 4: 3 weeks	Systems of Equations
Final Exam – Week of December 13-18, 2013	

Unit 1: Measurement

1. Measurement Systems
    - 1.1. SI Measurement
    - 1.2. Imperial Measurement
    - 1.3. Converting Between SI and Imperial Systems
2. Surface Area and Volume
    - 2.1. Units of Area and Volume
    - 2.2. Surface Area
    - 2.3. Volume
3. Right Triangle Trigonometry
    - 3.1. The Tangent Ratio
    - 3.2. The Sine and Cosine Ratios
    - 3.3. Solving Right Triangles

Unit 2: Algebra and Number

4. Exponents & Radicals
    - 4.1. Square Roots and Cube Roots
    - 4.2. Integral Exponents
    - 4.3. Rational Exponents
    - 4.4. Irrational Exponents

5. Polynomials
    5.1. Multiplying Polynomials
    5.2. Common Factors
    5.3. Factoring Trinomials
    5.4. Factoring Special Trinomials

Unit 3: Relations & Functions

6. Linear Relations & Functions
    6.1. Graphs & Relations
    6.2. Linear Relations
    6.3. Domain & Range
    6.4. Functions
    6.5. Slope
7. Linear Equations & Graphs
    7.1. Slope-intercept form
    7.2. General Form
    7.3. Slope-Point form
    7.4. Parallel and Perpendicular lines

Unit 4: Systems of Equations

8. Solving Systems of Linear Equations Graphically
    8.1. Systems of Linear Equations and Graphs
    8.2. Modeling and solving linear systems
    8.3. Number of solutions for systems of linear equations
9. Solving Systems of Linear Equations Algebraically
    9.1. Solving systems of linear equations by substitution
    9.2. Solving systems of linear equations by elimination
    9.3. Solving problems using systems of linear equations

Authorization:

This course outline has been reviewed and approved by the Program Chairperson and Dean.

Ryan Abel, Instructor

Janet Lowndes, Chair Date Authorized

Guy Harmer, Dean Date Authorized

Signed copies to be delivered to:
Instructor
Registrar's Office

Course Outline Effective Date: August 29, 2013