DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2014

INTRODUCTION TO MATH 0110

INSTRUCTOR: Lindsay Urness **PHONE:** (780) 539-2810
OFFICE: Math Lab A210 **E-MAIL:** lurness@gprc.ab.ca

OFFICE HOURS: Monday, Wednesday-Friday 9:30-10:00 in the Math Lab

PREREQUISITE(S)/COREQUISITE:
MA0091, or equivalent math placement test score

REQUIRED TEXT/RESOURCE MATERIALS:
Package of MA0110 modules, 2012
Scientific calculator, graph paper

CALENDAR DESCRIPTION:
This is a modularized course which covers measurement including surface area and volume, introduction to trigonometry, numbers, roots and exponents, polynomial multiplication and factoring, relations and functions, linear functions, and systems of equations.

CREDIT/CONTACT HOURS:
MA0110, Mathematics 10-C equivalent 5 (5-0-0)
Time: 75 Hours

DELIVERY MODE:

MA0110 is a modularized math course consisting of 8 separate units called modules. The instructions for each topic are given in the modules, followed by several examples and exercises. Study the instructions and work through the examples before starting each exercise. The answers for each exercise are given at the end of the module. Check your work often to make sure you understand each new topic. The key to success in working with modules is to ask questions whenever you have difficulty understanding the instructions, the examples, or the exercises. **Do not hesitate to ask for help.**

After each module you must write a test. When writing a test, be sure to show all of your work on the test paper. Marks are given for method as well as the final answer. A passing mark of 60% is required on the test before continuing on to the next module. If you are unable to attain this mark, you must review the material and rewrite the test. The first and second test marks will be averaged.

A 50-minute midterm, which will cover the first five modules, must be written by **Thursday, February 27th**. If you miss this date, you will receive a mark of 0% on your midterm. Upon completion of all the course modules, you will write a three hour final exam. Be sure to leave time to prepare for these important exams! They are worth a large percentage of your final grade.

The recommended test date for each module and the midterm is given in this course outline. Follow these dates as closely as you can. You are encouraged to write a test early if you are prepared. **Consult your instructor immediately if you find yourself falling behind schedule.** Your instructor may need to reassess your math skills to ensure that you are placed in a course where you can be successful. **All tests must be written by Tuesday, April 14th.**

Bonus
When you write your module tests on or before the given date, you will be awarded an additional 2% on your score for each test.

GRADING CRITERIA:

Your final mark is determined by:

8 module tests	48%
Midterm	17%
Final Exam	35%

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	**4-point Equivalent**	**Percentage Guidelines**	**Designation**
A^+	**4.0**	**90 – 100**	**EXCELLENT**
A	**4.0**	**85 – 89**	
A^-	**3.7**	**80 – 84**	**FIRST CLASS STANDING**
B^+	**3.3**	**77 – 79**	
B	**3.0**	**73 – 76**	**GOOD**
B^-	**2.7**	**70 – 72**	
C^+	**2.3**	**67 – 69**	**SATISFACTORY**
C	**2.0**	**63 – 66**	
C^-	**1.7**	**60 – 62**	
D^+	**1.3**	**55 – 59**	**MINIMAL PASS**
D	**1.0**	**50 – 54**	
F	**0.0**	**0 – 49**	**FAIL**
WF	**0.0**	**0**	**FAIL, withdrawal after the deadline**

TRANSFERABILITY:

This course is listed in the Alberta Transfer Guide. It is accepted at colleges and universities in Alberta as equivalent to Mathematics 10-C.

LEARNING OUTCOMES

1. Measurement
   Convert measurements in imperial units.
   Convert measurements between SI units and imperial units.
   Solve problems, using SI and imperial units that involve the surface area and volume of 3-D object, including
   - right cones and cylinders
   - right prisms and pyramids
   - spheres

2. Trigonometry
   Solve similar right triangles using proportions.
   Develop and apply the primary trigonometric ratios (sine, cosine, tangent) to solve problems that involve right triangles.

3. Numbers and Roots
   Demonstrate an understanding of factors of whole numbers by determining:
   - prime factors
   - greatest common factor
   - least common multiple
   - square root and cube root

   Demonstrate an understanding of irrational numbers by:
   - representing, identifying, and simplifying irrational numbers
   - ordering irrational numbers

4. Exponents
   Demonstrate an understanding of powers with integral and rational exponents.
   Apply the laws of exponents to simplify expressions.

5. Polynomials: Multiplication and Factoring
   Demonstrate an understanding of the multiplication of polynomial expressions (limited to monomials, binomials and trinomials).
   Demonstrate the understanding of factoring a polynomial expression by:
   - factoring out a monomial or binomial common factor
   - factoring a trinomial
   - factoring the difference of squares

6. Relations and Functions
   Describe and represent relations, using:
   - words
   - ordered pairs
   - table of values

- graphs
- arrow diagrams
- equations

Interpret and explain the relationships among data, graphs and situations.
Determine the domain and range of a relation.
Determine if a relation is a function.
Use functional notation to determine values.

7. Linear Functions

Demonstrate an understanding of slope with respect to:

- rise and run
- line segments and lines
- rate of change
- parallel and perpendicular lines

Graph a linear function by

- constructing a table of values and plotting points
- determining and plotting *x* and *y*-intercepts
- using slope and y-intercept

Determine the characteristics of the graphs of linear relations, including:

- intercepts
- slope
- domain and range

Relate to their graphs, linear relations expressed in:

- slope-intercept form: $y = mx + b$
- slope-point form: $y - y_1 = m(x - x_1)$

Determine the equation of a line given the following information:

- a graph
- a point and the slope
- two points
- a point and the equation of a parallel or perpendicular line
- slope and y-intercept

Express an equation in general form: $Ax + By + C = 0$.

Represent a linear function, using function notation.

8. Systems of Equations

Solve systems of linear equations in two unknowns using:

- graphing
- elimination
- substitution

Solve problems involving systems of equations.

Winter 2013/2014
MA0110 Tests/Exams

Module	TOPIC	Recommended Time & Test Date	Date written	Your mark
1	Measurement	7 days Thursday, January 16th		
2	Trigonometry	9 days Wednesday, January 29th		
3	Numbers and Roots	7 days Friday, February 7th		
4	Exponents	7 days Tuesday, February 25th		
	Review for midterm	1 day		
	MIDTERM - must be written on or before	**Thursday, February 27th**		
5	Polynomials: Multiplication & Factoring	9 days Wednesday, March 12th		
6	Relations and Functions	5 days Wednesday, March 19th		
7	Linear Functions	7 days Friday, March 28th		
8	Systems of Equations	8 days Wednesday, April 9th		
	Review for final	3 days		
	FINAL EXAM - 3 HOURS	**T.B.A**. April 16th -28th		

MA0110 Homework Schedule
Winter 2013/2014

1. Measurement

1-2	3	4	5	6	Review	**Test: Thursday, Jan. 16**
Jan. 7	**8**	**9**	**10**	**13**	**14**	**15**

2. Trigonometry

1	2	3	4	5	6	7	Review	**Test: Wednesday, Jan. 29**
Jan. 17	**20**	**21**	**22**	**23**	**24**	**27**	**28**	

3. Numbers and Roots

1	2	3	4	5	Review	**Test: Friday, Feb. 7**
Jan. 30	**31**	**Feb. 3**	**4**	**5**	**6**	

4. Exponents

1	2	3	4	Review	**Test: Tuesday, Feb. 25**
Feb. 10	**11**	**12**	**13**	**14 and 24**	

Midterm Exam on Wednesday, February 27th

5. Polynomials

1&2	3	4	5	6	7	8	Review	**Test: Wednesday, Mar. 12**
Feb. 28	**Mar. 3**	**4**	**5**	**6**	**7**	**10**	**11**	

6. Relations and Functions

1-2	3	4	Review	**Test: Wednesday, Mar. 19**
Mar.13	**14**	**17**	**18**	

7. Linear Functions

1&2	3	4	5	6	Review	**Test: Friday, Mar. 28**
Mar.20	**21**	**24**	**25**	**26**	**27**	

8. Systems of Equations

1	2	3	4	5	6	Review	**Test: Wednesday, Apr. 9**
Mar.31	**Apr. 1**	**2**	**3**	**4**	**7**	**8**	

Final Exam: (April 16th -28th) to be announced

STUDENT RESPONSIBILITIES:
In addition to the ***Student Rights and Responsibilities*** as set out in the **College Website**, the following guidelines will maintain an effective learning environment for everyone:

1. Regular attendance is expected of all students in all mathematics courses. Your success in math is directly linked to your attendance. Attendance will be taken daily.

2. Students are expected to be punctual. Arrive on time for classes and remain for the duration of scheduled classes.

3. Refrain from disruptive talking or socializing during class time.

4. Be respectful of others regarding food or beverages in the classroom. Clean up your eating area and dispose of garbage.

5. Recycle paper, bottles, and cans in the appropriate containers.

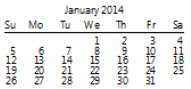
6. Children are not permitted in the classrooms.

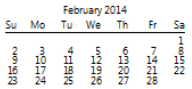
7. Students are expected to notify the instructor of any extenuating circumstances.

ELECTRONIC DEVICES:
Students are expected to turn off cell phones during class time or in labs. No unspecified electronic devices will be allowed in exams.

STATEMENT OF PLAGIARISM:
Please refer to the College Website for policies regarding plagiarism and cheating as well as the resultant penalties. These are serious issues and will be dealt with severely.

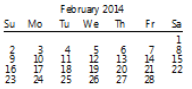
January 2014

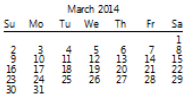




	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Dec 29 - Jan 4	**Dec 29**	**30**	**31**	**Jan 1, 14**	**2**	**3**	**4**
Jan 5 - 11	**5**	**6** Orientation	**7** First Day of Classes	**8** 1-2 Measurement	**9** 3 Measurement	**10** 4 Measurement	**11**
Jan 12 - 18	**12**	**13** 5 Measurement	**14** 6 Measurement	**15** Measurement Review	**16** Measurement Test	**17** 1 Trigonometry	**18**
Jan 19 - 25	**19**	**20** 2 Trigonometry	**21** 3 Trigonometry	**22** 4 Trigonometry	**23** 5 Trigonometry	**24** 6 Trigonometry	**25**
Jan 26 - Feb 1	**26**	**27** 7 Trigonometry	**28** Review Trigonometry	**29** Test Trigonometry	**30** 1 Number and Roots	**31** 2 Number and Roots	**Feb 1**

February 2014





	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Jan 26 - Feb 1	**Jan 26**	**27**	**28**	**29**	**30**	**31**	**Feb 1**
Feb 2 - 8	**2**	**3** 3 Number and Roots	**4** 4 Number and Roots	**5** 5 Number and Roots	**6** Number and Roots Review	**7** Number and Roots Test	**8**
Feb 9 - 15	**9**	**10** 1 Exponents	**11** 2 Exponents	**12** 3 Exponents	**13** 4 Exponents	**14** Exponents Review	**15**
Feb 16 - 22	**16**	**17** Family Day	**18** Winter Break	**19**	**20**	**21**	**22**
Feb 23 - Mar 1	**23**	**24** Exponents Review	**25** Exponents Test	**26** Review For Midterm	**27** Midterm	**28** 1-2 Polynomials	**Mar 1**

March 2014

March 2014

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April 2014

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2/23 - 28	**Feb 23**	**24**	**25**	**26**	**27**	**28**	**Mar 1**
3/2 - 7	**2**	**3** 3 Polynomials	**4** 4 Polynomials	**5** 5 Polynomials	**6** 6 Polynomials	**7** 7 Polynomials	**8**
3/9 - 14	**9**	**10** 8 Polynomials	**11** Polynomials Review	**12** Polynomials Test	**13** 1-2 Relations and Functior	**14** 3 Relations and Functior	**15**
3/16 - 21	**16**	**17** 4 Relations and Functior	**18** Relations and Functior Review	**19** Relations and Functior Test	**20** 1-2 Linear Functions	**21** 3 Linear Functions	**22**
3/23 - 28	**23**	**24** 4 Linear Functions	**25** 5 Linear Functions	**26** 6 Linear Functions	**27** Linear Functions Review	**28** Linear Functions Test	**29**
3/30 - 4/4	**30**	**31** 1 Systems of Equations	**Apr 1**	**2**	**3**	**4**	**5**

April 2014

April 2014

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

May 2014

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Mar 30 - Apr 5	**Mar 30**	**31**	**Apr 1** 2 Systems of Equations	**2** 3 Systems of Equations	**3** 4 Systems of Equations	**4** 5 Systems of Equations	**5**
Apr 6 - 12	**6**	**7** 6 Systems of Equations	**8** Review Systems of Equations	**9** Systems of Equations Test	**10** Review For Final	**11** Review For Final	**12**
Apr 13 - 19	**13**	**14** Last Day of Classes Review For Final	**15**	**16** Exam Week	**17**	**18**	**19**
Apr 20 - 26	**20**	**21** Exam Week	**22**	**23**	**24**	**25**	**26**
Apr 27 - May 3	**27**	**28** Last day of Exams	**29**	**30**	**May 1**	**2**	**3**