DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2014

INTRODUCTION TO MATH 0120

INSTRUCTOR: Joelle Reynolds **PHONE:** 780.539.2204
OFFICE: C305 **E-MAIL:** jreynolds@gprc.ab.ca

OFFICE HOURS: Mondays 1:00 pm – 2:00pm Thursdays 10:00 am – 11:20 am

PREREQUISITE(S)/COREQUISITE:
MA0110, Mathematics 10-C, or equivalent math placement test score

REQUIRED TEXT/RESOURCE MATERIALS:
Pre-Calculus 11 Work Text, 2011 (Pearson), publisher Mike Czukar
Scientific calculator, graph paper

CALENDAR DESCRIPTION:
This course explores sequences and series, radical expressions and equations, quadratic equations and functions, linear and quadratic inequalities, linear-quadratic and quadratic-quadratic systems of equations, rational expressions and equations, absolute value functions, reciprocal functions, and trigonometry including the sine and cosine laws.

CREDIT/CONTACT HOURS:
MA 0120 Mathematics Grade 20-1 Equivalent 5 (5-0-0)
Time: 75 Hours

DELIVERY MODE:

Students are guided through the textbook; additional notes and examples are provided as necessary. First, background concepts and rules are reviewed; then investigative work is done leading to new concepts, laws and formulas. Students are encouraged to actively participate in classroom lessons. Several related problems are assigned daily to reinforce new ideas and skills.

OBJECTIVES:
After completing MA0120, students will be able to:

1. Sequences and Series
   - Analyze arithmetic sequences and series to solve problems.
   - Analyze geometric sequences and series to solve problems.

2. Radical Expressions and Equations
   - Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands.
   - Solve problems that involve radical equations (limited to square roots).

3. Solving Quadratic Equations
   - Factor polynomials expressions in the form $ax^2 + bx + c$, $a^2x^2 - b^2y^2$, $a\big(f(x)\big)^2 + b\big(f(x)\big) + c$, and $a^2\big(f(x)\big)^2 - b^2\big(g(y)\big)^2$.
   - Solve problems that involve quadratic equations using factoring, the method of square roots, completing the square, and the quadratic formula.

4. Analyzing Quadratic Functions
   - Analyze quadratic functions of the form $y = a(x - p)^2 + q$ and determine the vertex, domain and range, direction of opening, axis of symmetry, and *x*- and *y*- intercepts.
   - Complete the square to change functions from the form $y = ax^2 + bx + c$ to the form $y = a(x - p)^2 + q$.

5. Graphing Inequalities and Systems of Equations
   - Solve problems that involve quadratic inequalities in one variable.
   - Solve problems that involve linear and quadratic inequalities in two variables.

- Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.

6. Trigonometry
   - Demonstrate an understanding of angles in standard position$[0^{\circ}$ to $360^{\circ}]$.
   - Solve problems, using the three primary trigonometric ratios, for angles from 0° to 360° in standard position.
   - Solve problems, using the cosine law and the sine law, including the ambiguous case.

7. Rational Expressions and Equations
   - Determine equivalent forms of rational expressions.
   - Perform operations on rational expressions.
   - Solve problems that involve rational equations.

8. Absolute Value and Reciprocal Functions
   - Demonstrate an understanding of the absolute value of real numbers.
   - Graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems.
   - Graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions).

TRANSFERABILITY:

This course is listed in the Alberta Transfer Guide. It is accepted at colleges and universities in Alberta as equivalent to Math 20-1.

**** Grades of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

**** Although 50% (D) is considered a pass for this course, we strongly recommend that you achieve a mark of 65% (C) to be successful at the next level.**

GRADING CRITERIA:

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**

EVALUATIONS:

Assignments (4 @4% each) 16%

Assignments will be collected at the end of units 1,3,5 and 7.

Tests (4 @8% each) 32%

Tests will cover two units of material at a time and will be conducted after units 2,4,6 and 8. Of the two units on a test, the second unit will be weighed more heavily than the first.

Midterm Exam 17%

The midterm will cover material from units 1 through 4.

Final Exam 40%

Cumulative (covers material from units 1 through 8)

STUDENT RESPONSIBILITIES:

MA0120 is a prerequisite for MA0130, which is required for many post-secondary programs. In taking this course, the primary goal is that students will develop their understanding of and ability to use mathematics. However, students in this course are also learning how to prepare for the demands and expectations of post-secondary education. Please read and ensure you understand the following expectations before we begin:

Regular attendance and participation is required.
Attendance is a strong indicator of student success. Attendance will be taken daily and may influence discretionary decisions made by the instructor. Students will be required to answer questions in class. Mathematics is not a spectator sport.

Assignments must be submitted on time.
Assignments are due **at the beginning of class** on the specified dates. There are only 4 assignments in this course. Manage your time appropriately to ensure they are completed on time.

Exams must be written on the days announced in class.
If an emergency prevents attendance on an exam day, students must contact me **immediately** via phone or email, and may be asked to provide documentation to justify their absence. Students who are approved to write at an alternate time will then be scheduled to write *an alternate version* of the exam at the first available opportunity. No unspecified electronic devices will be permitted during exams.

Complete Daily Homework.
At least **1 hour of study per day** outside of class time. Unless you are told otherwise, questions similar to those in the workbook may appear on assignments and tests even if they were not presented in class.

Please be respectful of the learning environment.
Please be conscious of how your behaviors affect the learning of others. Please refrain from any behaviors that might disturb the people around you, including socializing, cell phone use, littering and tardiness. The instructor will take measures as required to protect the learning environment for all students.

Take responsibility for your learning.
Your instructor will monitor and periodically update you with your progress, but it is ultimately **the student's responsibility** to direct and manage their own learning. It is your job to recognize when you require additional support and to seek those supports out. This may include:

Communicate with your instructors.
You can communicate with your instructors via:

- One to one appointments (discussion regarding your progress or office hours help)
- Moodle (additional practice and study materials, assignments, marks and remote office hours link)
- Email (notifications regarding schedule changes, assignment adjustments and absences)

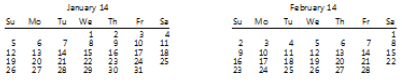
Students are expected to check Moodle as well as GPRC email on a regular basis.

If there are major influences that may interfere with your learning, inform your instructor well in advance, so that arrangements can be made to work around them if possible. If you are concerned with your progress in the course, please make an appointment with your instructor to discuss strategies for success.

STATEMENT ON PLAGIARISM AND CHEATING:
Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with according to college policy.

MA0120 Winter 2014 Schedule

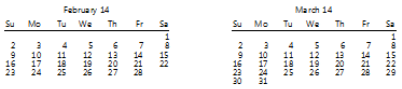
January 14



	Monday	Tuesday	Wednesday	Thursday	Friday
30/12 - 2/1	**Dec-30**	**31**	**Jan-1-14**	**2**	**3**
6 - 9/1	**6**	**7** Course Intro	**8**	**9** 1.1	**10** 1.2
13 - 16/1	**13** 1.3	**14** 1.4	**15**	**16** 1.5	**17** 1.6
20 - 23/1	**20** 2.1	**21** 2.2	**22**	**23** 2.3	**24** 2.4
27 - 30/1	**27** 2.5	**28** Review	**29**	**30** Test	**31** 3.1

This schedule is TENTATIVE and may change at the discretion of the instructor.

February 14



	Monday	Tuesday	Wednesday	Thursday	Friday
Feb-3 - 7	**Feb-3** 3.2	**4** 3.3	**5**	**6** 3.4 3.5	**7** 4.1
Feb-10 - 14	**10** 4.2	**11** 4.3	**12**	**13** 4.4	**14** 4.5
Feb-17 - 21	**17** Family Day	**18** Winter Break	**19**	**20**	**21**
Feb-24 - 28	**24** 4.6	**25** 4.7	**26**	**27** Review	**28** Test

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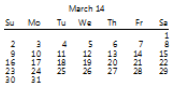
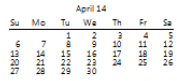
MA0120 Winter 2014 Schedule

March 14





	Monday	Tuesday	Wednesday	Thursday	Friday
3 - 6/3	**Mar-3** Review	**4** Midterm	**5**	**6** 5.1	**7** 5.2 5.3
10 - 13/3	**10** 5.4	**11** 5.5	**12**	**13** 6.1	**14** 6.2
17 - 20/3	**17** 6.3	**18** 6.4	**19**	**20** 6.5	**21** Review
24 - 27/3	**24** Test	**25** 7.1	**26**	**27** 7.2	**28** 7.3
31/3 - 3/4	**31** 7.4	**Apr-1**	**2**	**3**	**4**

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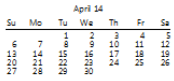
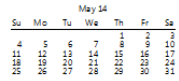
April 14





	Monday	Tuesday	Wednesday	Thursday	Friday
31/3 - 3/4	**Mar-31**	**Apr-1** 7.5	**2**	**3** 7.6	**4** 8.1
7 - 10/4	**7** 8.2	**8** 8.3	**9**	**10** Review	**11** Test
14 - 17/4	**14** Last Day of Classes Review	**15**	**16** Exams	**17**	**18** Good Friday
21 - 24/4	**21** From Apr-19	**22**	**23** Exams	**24**	**25**
28/4 - 1/5	**28** Exams	**29**	**30**	**May-1**	**2**

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