DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2015

MA0120 Mathematics Grade 20-1 Equivalent – 5 (5-0-0) 75 Hours

INSTRUCTOR: Joelle Reynolds **PHONE:** 780.539.2204

OFFICE: C305 **E-MAIL:** jreynolds@gprc.ab.ca

OFFICE HOURS: T/R 1 – 2:20 pm

PREREQUISITE:

MA0110, Mathematics 10-C, or equivalent math placement test score

REQUIRED TEXT/RESOURCE MATERIALS:

Pre-Calculus 11 Work Text, (Pearson)

Pre-Calculus 11 Math XL, Single Student Access (Pearson)

Non-graphing scientific calculator, graph paper

Computer/Internet Access

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:

5 (5-0-0) 75 Contact 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
   - Perform 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 and the quadratic formula.

4. Analyzing Quadratic Functions
   - Analyze quadratic functions and determine the vertex, domain and range, direction of opening, axis of symmetry, and *x*- and *y*- intercepts.
   - Convert between general, standard and factored forms.
   - Graph quadratic functions from general, standard and factored forms.
   - Solve problems modelled by quadratic functions.

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**

EVALUATION:

Assignments (8 @ 2.5% each)	20%
Section Exams (4 @ 5% each)	20%
Midterm Exam	20%
Final Exam	40%

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 appreciation, 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:

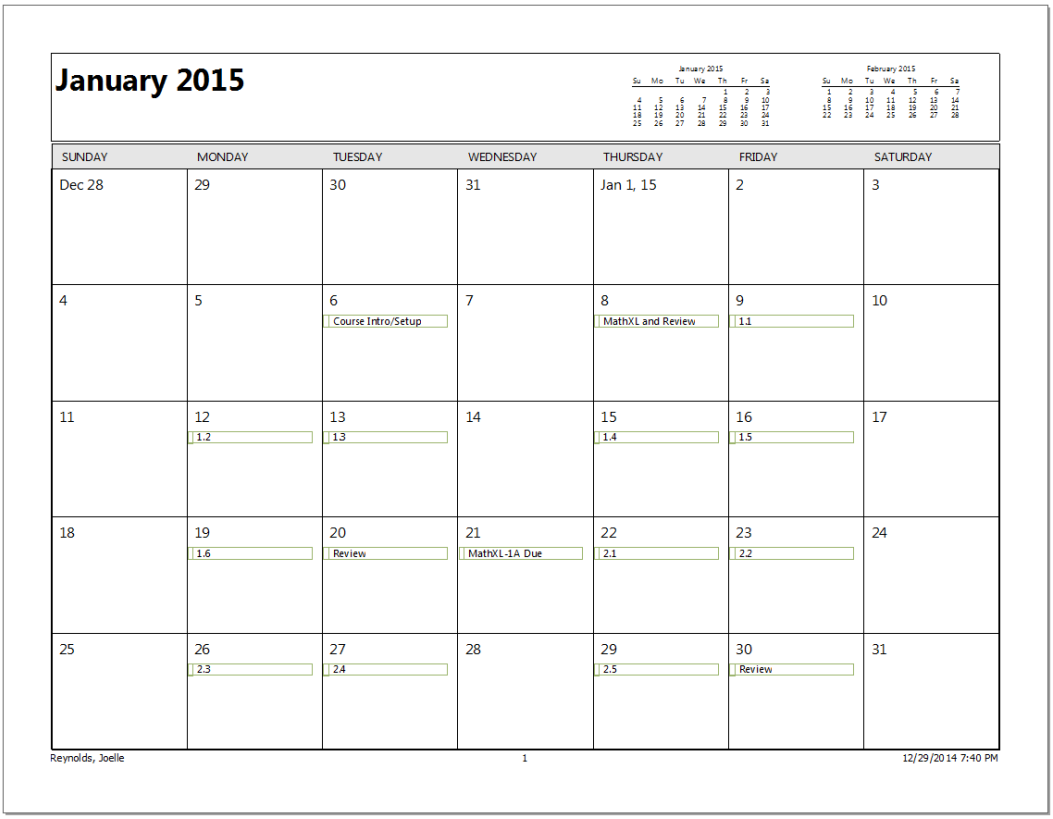
1. Regular attendance and participation is required.
2. Check Moodle as well as GPRC email on a regular basis.
3. Assignments must be submitted on time.
4. Exams must be written on the days announced in class.
5. If an emergency prevents attendance on an exam day, students must contact me as soon as possible via phone or email, and may be asked to provide documentation to justify their absence.
6. No unspecified electronic devices will be permitted during exams.
7. Complete daily homework. **At least** 1 hour of study per day outside of class time is required.
8. Behaviors that interfere with learning are not acceptable.
9. Take responsibility for your learning.
10. Communicate all requests regarding appointments, etc via email.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the College Policy on Student Misconduct: Plagiarism and Cheating at https://www.gprc.ab.ca/files/forms_documents/Student_Misconduct.pdf

**Note: all Academic and Administrative policies are available at https://www.gprc.ab.ca/about/administration/policies/

MA0120 Tentative Timeline Winter 2015



January 2015

January 2015

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

February 2015

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

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Dec 28	29	30	31	Jan 1, 15	2	3
4	5	6 Course Intro/Setup	7	8 MathXL and Review	9 1.1	10
11	12 1.2	13 1.3	14	15 1.4	16 1.5	17
18	19 1.6	20 Review	21 MathXL-1A Due	22 2.1	23 2.2	24
25	26 2.3	27 2.4	28	29 2.5	30 Review	31

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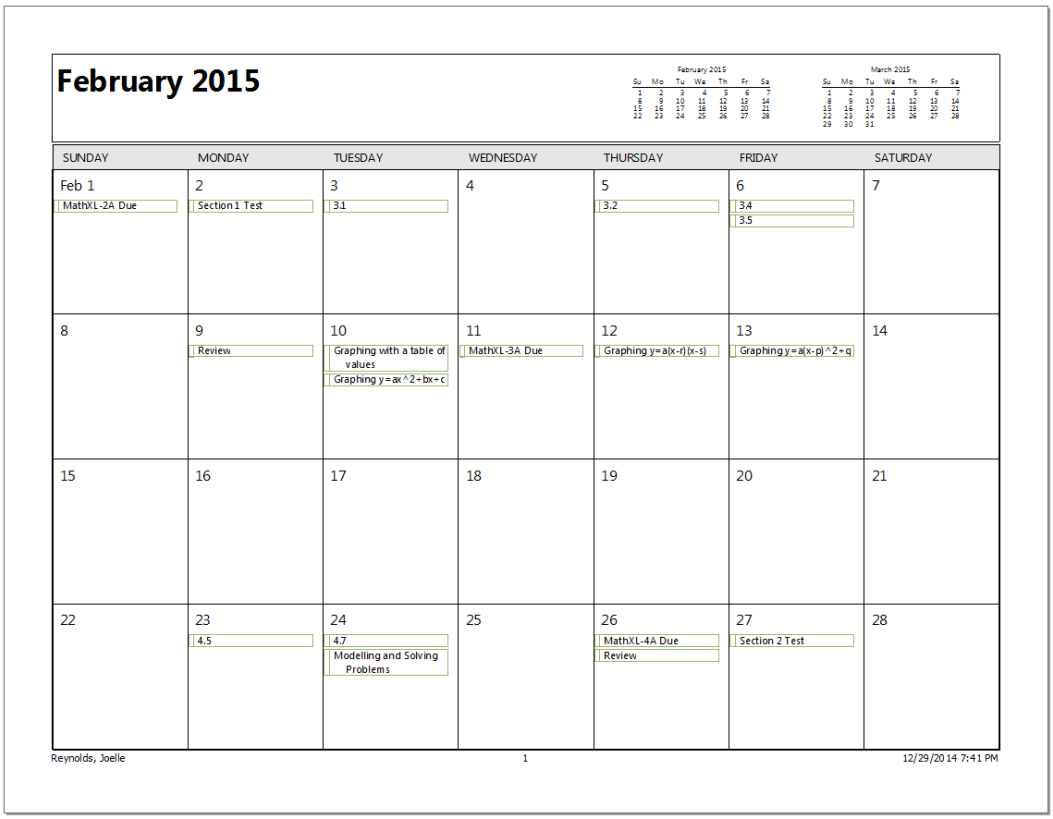

February 2015

February 2015

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

March 2015

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
Feb 1 MathXL-2A Due	2 Section 1 Test	3 3.1	4	5 3.2	6 3.4 3.5	7
8	9 Review	10 Graphing with a table of values Graphing y=ax^2+bx+c	11 MathXL-3A Due	12 Graphing y=a(x-r)(x-s)	13 Graphing y=a(x-p)^2+q	14
15	16	17	18	19	20	21
22	23 4.5	24 4.7 Modelling and Solving Problems	25	26 MathXL-4A Due Review	27 Section 2 Test	28

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Timelines are tentative and may change at the discretion of the instructor

MA0120 Tentative Timeline Winter 2015

March 2015

March 2015

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 2015

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
Mar 1	2 Review	3 Midterm	4	5 5.1	6 5.2 5.3	7
8	9 5.4 5.5	10 Review	11 MathXL-5A Due	12 6.1	13 6.2	14
15	16 6.4	17 6.5	18	19 MathXL-6A Due Review	20 Section 3 Test	21
22	23 7.1	24 7.2	25	26 7.3	27 7.4	28
29	30 7.5	31 Review	Apr 1	2	3	4

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April 2015

April 2015

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 2015

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 29	30	31	Apr 1 MathXL-7A Due	2 8.1	3 Good Friday	4
5	6 8.2	7 8.3	8	9 8.5	10 Review	11
12	13 Section 4 Test	14 Review	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	May 1	2

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