DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – FALL 2020

MA0120 (A2) - Mathematics Grade 20-1 Equivalent - 5 (6-0-0) HS

90 hours for 7.5 weeks

INSTRUCTOR: Reddy Ganta **PHONE:** (780) 539-2810 or 2850
OFFICE: A205 or B301 **E-MAIL:** Rganta@gprc.ab.ca
OFFICE HOURS: 4:30 pm to 6:00 pm on Wed & Thur.; or by appointment

FALL 2020 DELIVERY: ***This course is delivered remotely. There is no face-to- face or onsite requirement.*** *Students must have a computer with a webcam and reliable internet connection. Technological support is available through helpdesk@gprc.ab.ca.*

CALENDAR DESCRIPTION:

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

PREREQUISITE(S)/COREQUISITE:

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

REQUIRED TEXT/RESOURCE MATERIALS:

Pre-Calculus 11 my WORKTEXT (Pearson)

Non-Graphing scientific calculator. Graph paper, a note book or loose leaf for everyday use.

DELIVERY MODE:

- MA0120 is a lecture class. Do not hesitate to ask questions as soon as you need help.

- There will be four tests, a midterm, and a final exam scheduled at the end of the semester. **Tests must be written as listed on page 7.** You must revise and review the material thoroughly before taking a Chapters' test / exam. When writing a test, be sure to show all of your work on the test paper. Marks are given for the method as well as the final answer. Even though 50% is a passing mark, a mark of **at least 60% in any chapter(s) test** is recommended.

- Upon completion of the first four chapters, a midterm test will be written on **October 19, Monday**. If you miss this date, you will receive a mark of 0% on your midterm. Only in specific cases may student be given an opportunity to make a missed midterm. Doctor, lawyer or police documentation may be required.

- Upon completion of all eight chapters, you will write a three hours final exam. Be sure to leave time to prepare for this important exam! It is worth a large percentage of your final grade.

- **Consult your instructor immediately if you find yourself falling behind schedule.**

COURSE OBJECTIVES:

As stated by Alberta Education,
https://education.alberta.ca/teachers/program/math/educator/progstudy/

Upon successful completion of this course, the student will:

1. Develop algebraic reasoning and number sense
2. Develop trigonometric reasoning
3. Develop algebraic and graphical reasoning through the study of relations

LEARNING OUTCOMES:

Upon successful completion of this course, the student will be able to use:

1. **Sequence 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 of:

$$ax^2 + bx + c$$
$$a^2x^2 - b^2y^2$$
$$a(f(x))^2 + b(f(x)) + c$$
$$a^2(f(x))^2 - b^2(g(y))^2$$

   - 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 $[\ 0°, 360°]$
   - Solve problems using the three primary trigonometric ratios for angles from $0° \ to \ 360°$ in standard position
   - Solve problems using the cosine law and 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 value functions (limited to linear and quadratic functions) to solve problems

TRANSFERABILITY:

Grade 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. This course is listed in the Alberta Transfer Guide as equivalent to Math 20-1. ** Although 50% (D) is considered a pass for this course, we strongly recommend that you achieve a mark of 65% 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**

How to study a chapter to your advantage:

1. Read the title of each chapter, table of contents page, and title of each section. You will observe a progressive growth of operations/concepts.

2. Read and thoroughly understand the concepts and terminology of a section.

3. Understand and do each example very carefully using the terminology. ***If difficulties arise, meet with your instructor*.**

4. Match each question in an exercise with the corresponding examples before the exercise. *If difficulties arise, return in your module and rework the examples.*

5. Attempt the exercise questions and check the answers before moving on to the next section. ***If difficulties arise, meet with your instructor*.**

6. Review the terminology of the module(s) before taking any test/exam.

EVALUATION CRITERIA:

Your final mark is determined by:

4 tests	40 %
Midterm	25 %
Final Exam	35 %

Test Schedule for Fall 2020

Topics / Tests / Exams

Test #1	% towards the Final Exam	Topics	Recommended Test Date	Date Written	Mark Obtained
1	10%	1. Sequence Series & 2. Absolute Value & Radicals	September 22 Tuesday		
2	10%	3. Solving Quadratic Eq. & 4. Analysing Quad. Eq.	October 13 Tuesday		
Midterm	**25%**	**All of the Above**	**October 19 Monday**		
3	10%	5. Inequalities and system of Equations & 6. Trigonometry	November 12 Thursday		
5	10%	7. Rational Ex. and Equations & 8. Absolute Value and Reciprocal Functions	December 3 Thursday		
Final Exam	**35%**		**TBA (Dec 11 - 19)**		

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

ELECTRONIC DEVICES:

No unspecified electronic devices will be allowed in exams.

STATEMENT ON PLAGIARISM AND CHEATING

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Admission Guide at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at www.gprc.ab.ca/about/administration/policies/**

**Note: All Academic and Administrative policies are available on the same page.