



**DEPARTMENT OF ACADEMIC UPGRADING**

**COURSE OUTLINE – SPRING 2019**

**MA0120 (A4) - Mathematics Grade 20-1 Equivalent - 5 (0-0-7.5) HS  
90 hours for 7.5 weeks**

**INSTRUCTOR:** Reddy Ganta                      **PHONE:** (780) 539-2810 or 2850

**OFFICE:** A205 or J221                      **E-MAIL:** rganta@gprc.ab.ca

**OFFICE HOURS:** TBA

**MA 0120 - Mathematics Grade 20-1 Equivalent 5 (6-0-0) HS**

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.

**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/self-paced instructions. **Do not hesitate to ask for 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 **May 27, 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.** Your instructor may ask you to spend more time in the Math Lab and get help often. **All tests must be written by Tuesday, June 18.**

## 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 polynomial expressions in the form of:

$$\begin{aligned} &ax^2 + bx + c \\ &a^2x^2 - b^2y^2 \\ &a(f(x))^2 + b(f(x)) + c \\ &a^2(f(x))^2 - b^2(g(y))^2 \end{aligned}$$

- 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 [  $0^\circ, 360^\circ$  ]
- Solve problems using the three primary trigonometric ratios for angles from  $0^\circ$  to  $360^\circ$  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:**

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

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 Spring 2019

### 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	May 13 Monday		
2	10%	3. Solving Quadratic Eq. & 4. Analysing Quad. Eq.	May 22 Wednesday		
<b>Midterm</b>	<b>25%</b>	<b>All of the Above</b>	<b>May 27 Monday</b>		
3	10%	5. Inequalities and system of Equations & 6. Trigonometry	June 7 Friday		
5	10%	7. Rational Ex. And Equ. & 8. Absolute Value and Reciprocal Functions	June 18 Tuesday		
<b>Final Exam</b>	<b>35%</b>		<b>June 21 Friday</b>		

## **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 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/\\*\\*](http://www.gprc.ab.ca/about/administration/policies/**)

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

## **STUDENT PRINTING POLICY:**

Please refer to the College website (Home > Tuition and Fees) for the printing policy which limits the free use of paper; extra charges will apply if the limit is exceeded.