



**DEPARTMENT OF ACADEMIC UPGRADING**

**COURSE OUTLINE – WINTER 2013**

**INTRODUCTION TO MATH 0120**

**INSTRUCTOR:** Alan Iwaskow

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**OFFICE HOURS:** 1:00- 2:30pm Tuesdays and Thursdays in C207

**PREREQUISITE(S)/COREQUISITE:**

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

**REQUIRED TEXT/RESOURCE MATERIALS:**

Pre-Calculus 11, 2011 (Pearson)

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; in order to succeed in this course, students must commit to at least an hour of homework daily.

**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.

**OBJECTIVES:**

Students will develop problem solving skills and gain an appreciation of the mathematics of modern society.

**SUCCESS STANDARD:**

Although 50% is considered a pass for this course, if you wish to be successful at the next level, we strongly recommend that you achieve a mark of 65% or better.

**GRADING CRITERIA:**

Your final mark is determined by:

8 module tests and/or assignments	48%
Midterm	17%
Final Exam	35%

**GRANDE PRAIRIE REGIONAL COLLEGE****GRADING CONVERSION CHART**

<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>

## LEARNING OUTCOMES:

### 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:

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

Solve problems that involve quadratic equations using

- factoring
- the method of square roots
- completing the square
- 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
- 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  $0^\circ$  to  $360^\circ$  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).

**MA0120 TIMELINES  
WINTER 2013**

Unit	TOPIC/DESCRIPTION	Approximate Timeline	Your Mark
1	Sequences and Series	8 days	
2	Radical Expressions and Equations	7 days	
3	Solving Quadratic Equations	7 days	
4	Analyzing Quadratic Functions	8 days	
	Review for Midterm	2 days	
	<b>MIDTERM EXAM</b>		
5	Graphing Inequalities and System of Equations	8 days	
6	Trigonometry	7 days	
7	Rational Expressions and Equations	8 days	
8	Absolute Value and Reciprocal Functions	6 days	
	Review for Final Exam	3 days	
	3-hour Final Exam	TBA	

## **STUDENT RESPONSIBILITIES:**

In addition to the *Student Rights and Responsibilities* as set out on 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:**

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.

## **STUDENT PRINTING POLICY:**

Please use the following link to read about GPRC's Student Printing Policy.

<http://www.gprc.ab.ca/pdf/policies/admin/StudentPrintingPolicy.pdf>