



DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2016

MA0120 (B3): MATHEMATICS GRADE 20-1 EQUIVALENT – 5 (5-0-0) 75 Hours

INSTRUCTOR: Sukhvir Sandhu **PHONE:** (780) 539-2810 or 2234

OFFICE: Math Lab A205 **E-MAIL:** ssandhu@gprc.ab.ca

OFFICE HOURS: TBA

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 functions, reciprocal functions, and trigonometry including the sine and cosine law.

PREREQUISITE(S)/COREQUISITE:

MA0110 or equivalent math placement test score

Notes: You may register in MA0120 if you achieved a mark of 60 percent or better in Alberta Math 10-C, or equivalent, within the previous two years.

REQUIRED TEXT/RESOURCE MATERIALS:

Pre-Calculus 11 Work Text, 2011 (Pearson), publisher Mike Czucar
Scientific calculator, graph paper, loose leaf paper or note book; a pencil, an eraser, a ruler.

DELIVERY MODE:

- MA 0120 is a modularized math course divided into 8 separate topics. Each topic introduces new vocabulary of the topic. The topic is further divided into five or six subtopics. Each sub-topic introduces one new objective to be accomplished,

followed by new term written in **bold letters** with its explanation, up to a maximum of four to six new terms. Each new objective is demonstrated with four examples with clearly stated instructions, followed by exercise questions. Study the terms and their explanations and work through the examples before starting the exercise questions. The answers to all the exercise questions are listed under the title **Answers** before starting the next sub-topic. The mastery of every two sub-topics is further tested in an exercise called **Assess Your Understanding**. There is a lot of provision to review the material learnt in each topic. Do every single question to make sure you understand the newly introduced concepts. The key to success in working with a one-to-one delivery method is to ask questions whenever you have difficulty understanding the instructions, the examples, or the exercises. **Do not hesitate to ask for help.**

- There will be four assignments, four tests, one midterm, and a final exam in this course
- You must submit an **assignment** for marks for certain topic. Failing to hand in the assignment on the required date will result in a mark reduction for that particular assignment. Feedback on the assignment will be given as soon as possible, but must not take more than 24 hours.
- When doing your assignment or 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 test/assignment is recommended.
- **Only one test re-write of your choice is allowed. It will replace the corresponding mark, and must be taken during the last week of classes.**
- Upon completion of the first four topics, a midterm test will be written on or before **Thursday, March 3**. If you miss this date, you will receive a mark of 0% on your midterm. Upon completion of all eight sections, you will write a three hour 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 / rewrite must be written by Wednesday, April 13.**

COURSE OBJECTIVES:

This course introduces students to:

- arithmetic and geometric sequence and series, general terms of each sequence, and sum of each series, and their practical applications

- radical expressions with numerical or variable radicand
- strategies for solving radical equations
- factoring strategies to solve quadratic equation
- characteristics of a quadratic function and its graph
- quadratic inequalities on one variable and different strategies to solve them
- graphing or algebraic solution to systems of linear-quadratic equations and quadratic-quadratic equations
- primary trigonometric ratios to angles in standard positions
- sine law and cosine law to problems in real life situations
- product, division, addition, and subtraction of rational expressions
- the strategies to solve rational equations
- absolute value functions and the graphing
- different strategies to solve absolute value equations

COURSE OUTCOME:

As a result of taking this course, students will gain the ability to:

- solve problems involving arithmetic sequences/series
- solve problems involving geometric sequences/series
- simplify sum, difference, product, and quotients of radical expressions
- solve linear equations and equations involving radicals
- factor polynomial expressions and solve quadratic equations
- determine the number of solutions of quadratic equations without solving the equations
- identify the characteristics of quadratic functions and sketch its graph
- write a quadratic function to model a problem, then solve the problem
- graph the linear inequalities in two variables and solve related problems
- solve system of linear-quadratic equations and quadratic-quadratic equation using different strategies
- solve problems in triangles that are not right triangles using sine and cosine law
- calculate the angle in a standard position when conditions are given
- determine equivalent forms of rational expressions
- simplify rational expressions using the rules for the order of operations
- graph and identify the properties of absolute value functions
- solve absolute value equations using different strategies

TRANSFERABILITY: N/A

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

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MA0120 Topics/Tests or Assignment

1. Sequence and Series

- Assignment
- Recommended time to finish the topic and assignment is 8 days
- Recommended date and day for the assignment to be handed in for marks is Monday, Jan 18.

2. Radical Expressions and Equations

- Recommended time to finish the topic is 7 days.
- Test which would include topic 1 and 2.
- Recommended date and day for the test is Friday, Jan 29.

3. Solving Quadratic Equations

- Assignment
- Recommended time to finish the topic and assignment is 7 days
- Recommended date and day for the assignment to be handed in for marks is Tuesday, February 9.

4. Analyzing Quadratic Functions

- Recommended time to finish the topic is 7 days.
- Test which would include topic 3 and 4.
- Recommended date and day for the test is Monday, February 29.

Midterm must be written on Thursday, March 3

5. Graphing Inequalities and System of Equations

- Assignment
- Recommended time to finish the topic and assignment is 8 days

- Recommended date and day for the assignment to be handed in for marks is Tuesday, March 15.

6. Trigonometry

- Recommended time to finish the topic is 7 days.
- Test which would include topic 5 and 6.
- Recommended date and day for the test is Tuesday, March 29.

7. Rational Expressions and Equations

- Assignment
- Recommended time to finish the topic and assignment is 7days
- Recommended date and day for the assignment to be handed in for marks is Thursday, April 7.

8. Absolute Values

- Recommended time to finish the topic is 2 days.
- Test which would include topic 7 and 8.
- Recommended date and day for the test is Tuesday, April 13.

Final Exam: (April 15- 26)

EVALUATION CRITERIA:

Your final mark is determined by:

4 Assignments	12 %
4 Section Tests	36 %
Midterm	20 %
Final Exam	32 %

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/**

**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 be applied if the limit is exceeded.