GPRC

DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE Winter 2018

MA0120 (A3/VC)- Mathematics Grade 20-1 Equivalent 5 (6-0-0) HS
6 hours per week for 15 weeks (90 hours)

INSTRUCTOR: Sheryl Heikel **PHONE:** Office: 780–539–2059
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OFFICE HOURS: Tuesday 9:00 – 9:50 am, Thursday 10:00 – 11:00 am
Or by appointment

CALENDAR DESCRIPTION:

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 Work Text, (Pearson)
Winter 2018 Course ID XL07-L1Z0-501Z-5EN3
Math XL for school https://www.mathxlforschool.com/launch.aspx
Pre-Calculus 11 Math XL, Single Student Access (Pearson)
Personal Code is provided with purchase of workbook/text.
NON-GRAPHING scientific calculator, If you are purchasing, a TI-**30X** IIS is recommended.
graph paper (with you in class at all times)
Computer/Internet Access

DELIVERY MODE(S):

Classroom instruction. Use of Moodle and computer program Math XL are required.
This course is also available by video conference at other GPRC sites.

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

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

LEARNING OUTCOMES:

upon successful completion of this course the student 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 $[0^\circ \text{to } 360^\circ]$.
   - 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:

Grade 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. 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% (C) to be successful at the next level.

EVALUATIONS: Course final grade will be based on the following components.

4 Section Tests	35%
Assignments (Math XL and Handin)	10%
Midterm Exam	20%
Final Exam (Cumulative)	35%

All tests and exams MUST be written at the scheduled times unless **PRIOR** arrangements have been made with the instructor. A missed test (exam) will result in a score of ZERO on that test (exam). Only in very specific cases may student be given an opportunity to make up a missed exam (student will be presented with a different version of the exam). Doctor, lawyer or police documentation may be required. The final exam is 3 hours long and is scheduled by the registrars' office during GPRC Exam weeks. Do not book vacation in this time period.

GRADING CRITERIA: Final Grades will be assigned on the Letter Grading System.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE / TENTATIVE TIMELINE:

Math 0120 consists of 8 units divides into 4 sections — **Tentative** Exam dates

A. Sequence Series (text ch 1)
Absolute Value and Radicals (text ch 2) — January 25

B. Solving Quadratic Equations (text ch 3)
Analyzing Quadratic Equation (text ch 4) — February 13

Midterm Exam (20%) — February 16

C. Inequalities and Systems of Equations (ch 5)
Trigonometry (ch 6) — March 16

D. Rational Expressions and Equation (ch 7)
Absolute Value and Reciprocal Functions (ch 8) — April 12

STUDENT RESPONSIBILITIES:

Refer to the College Policy on Student Rights and Responsibilities at https://www.gprc.ab.ca/files/forms_documents/StudentRightsandResponsibilities.pdf

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. Students in this course are also learning how to prepare for the demands and expectations of post-secondary education.

The Academic Upgrading Department is an adult education environment. Students are expected to show respect for each other as well as faculty and staff. Students are expected to participate fully in achieving their educational goals.

Certain activities are disruptive and not conducive to an atmosphere of learning. In addition to the *Student Rights and Responsibilities* as set out in the College calendar, the following guidelines will maintain an effective learning environment for everyone. We ask the cooperation of all students in the following areas of classroom deportment.

1. **Attendance**: Regular attendance and class participation is expected of all students and is crucial to good performance in the course. Class interruption due to habitual late arrival or leaving early will not be permitted. You may be debarred from the final exam if your absences exceed 15% of class days (10 lecture classes).
2. **Once in class** – remain in class. Leaving to get a coffee is disruptive for others.
3. Check **Moodle** as well as **GPRC email** on a regular basis.
4. Assignments must be submitted on time.
5. Exams must be written on the days announced in class.
6. If an emergency prevents attendance on an exam day, students must contact me before the end of the exam (as soon as possible) via phone or email, and may be asked to provide documentation to justify their absence.
7. No unspecified electronic devices will be permitted during exams.
8. Complete daily homework. **At least 1.5** hours of study per day outside of class time is required to.
9. Behaviors that interfere with learning are not acceptable.
10. Take responsibility for your learning.
11. **Communicate all requests regarding appointments, etc via email**.

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 Calendar at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at https://www.gprc.ab.ca/about/administration/policies

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