



DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – SPRING 2013

INTRODUCTION TO MATH 0120

INSTRUCTOR: Lindsay Urness **PHONE:** 780.539.2223
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OFFICE HOURS: 10:30- 12:00pm Monday, Tuesday, Wednesday, Thursday

PREREQUISITE(S)/COREQUISITE:

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

REQUIRED TEXT/RESOURCE MATERIALS:

Pre-Calculus 11 Work Text, 2011 (Pearson), publisher Mike Czukar
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 awareness of mathematics in 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 | 40% |
| Assignments | 8% |
| Midterm | 17% |
| Final Exam | 35% |

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 |

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° to 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 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 | 4days | |
| 2 | Radical Expressions and Equations | 4 days | |
| 3 | Solving Quadratic Equations | 5 days | |
| 4 | Analyzing Quadratic Functions | 3 days | |
| | Review for Midterm | 1 days | |
| | MIDTERM EXAM | | |
| 5 | Graphing Inequalities and System of Equations | 5days | |
| 6 | Trigonometry | 4days | |
| 7 | Rational Expressions and Equations | 4 days | |
| 8 | Absolute Value and Reciprocal Functions | 4days | |
| | Review for Final Exam | 2 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>

ADDITIONAL COURSE OBJECTIVES:

As a student, you will be expected to develop positive learning skills including:

- regularly checking *Moodle* for the week's schedule and assignment or test dates
- checking *Moodle*, especially when you absolutely need to be absent, and completing exercises and assignments on time

EXAMINATIONS:

Based on GPRC policy, you are responsible to “write tests and final examinations at the times scheduled by the instructor or the Office of the Registrar”.

If you know that you will need to be away for a test, make arrangements with me to write either before or after the group. If you must be absent due to medical or unforeseen circumstances, you will also need to make arrangements with me as well as write the test before it is returned to other students.

Once you have made arrangements, the test will be available in the **Testing Room (A205) in the hours** between 9:00am and 1:00pm

STUDENT RESPONSIBILITIES: Attendance is a requirement for academic and career success. Attend class unless completely unavoidable. If you are ill and could make others sick, you have reason to be away. Not feeling 100 percent is not an excuse. All assignments will be posted on *Moodle* and students have the responsibility of handing each assignment on time. Late submission of assignments will be subject to deduction of 5 percent/day ONLY until the corrected assignments are returned (that is, unless prior arrangements were made). Unfortunately, late submissions will not be accepted after marked assignments have been returned.

If I need to be away, I will let you know either in class or electronically through *Moodle*. I will make arrangements for you to continue course work by providing activities/assignments so we do not fall behind in our course work. Likewise, if you need to be away, I expect you will make arrangements with me so I may help you. It is your responsibility to check the schedule on *Moodle*, and do not let yourself fall behind.

If you need assistance or extra time completing course material, it is your responsibility to meet with me as soon as possible.

In addition to the “Student Rights and Responsibilities” as set out in *GPRC Policies*, the following guidelines will allow us to have an effective learning environment for everyone.

- I will start classes on time; similarly, arrive on time, be ready to work, and remain for the duration of the class.
- Some activities are disruptive to teaching and learning, so during class, have your phone on silent mode and no texting.
- Many learners prefer a quiet learning/working atmosphere, so refrain from unrelated and/or disruptive talking during class time.
- Be respectful of others regarding food or beverages in the classroom. You may have a beverage or a snack, but eat your lunch before/after class.
- Clean up your area and dispose of garbage.

STATEMENT ON PLAGIARISM AND CHEATING: Grande Prairie Regional College “expects intellectual honesty from its students. Intellectual honesty demands that the contribution of others be acknowledged. To do less is to cheat ... [therefore] the College has adopted appropriate penalties for student misconduct with respect to plagiarism and cheating” (from the *GPRC Academic Policy – Student Misconduct*). If you wish to obtain further information, refer to GPRC’s Academic Policy titled *Student Misconduct: Plagiarism and Cheating*.

<http://www.gprc.ab.ca/downloads/documents/Student%20Misconduct%20Plagiarism%20and%20Cheating.pdf>

Plagiarism includes submitting copied work as your own as well as allowing another person to copy, thus enabling that person to commit plagiarism. So while you may work together, you must make certain to submit your own work.

Students in LL 0110 found to be “intellectually dishonest” on assignments or tests will receive a grade of zero. As an additional caution, be aware that copying even a short passage is plagiarism.