DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2013
INTRODUCTION TO MA0122

INSTRUCTOR: Sukhvir Sandhu   **PHONE:**   780 – 539 - 2234

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OFFICE HOURS: 8:00 to 8:30 am and 9:30 to 10:30 am in A210

PREREQUISITE(S)/COREQUISITE:

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

REQUIRED TEXT/RESOURCE MATERIALS:

- Principles of Mathematics 11 Workbook, 2011 Nelson
- Scientific calculator, graph paper, geometry set, binder, loose leaf and dividers to organize handouts and notes provided.

CALENDAR DESCRIPTION:

Topics for this course include: inductive and deductive reasoning, spatial reasoning, properties of angles and triangles, acute triangle trigonometry, sine and cosine laws, radical expressions and equations, statistical reasoning, quadratic functions and quadratic equations, rates and proportional reasoning.

CREDIT/CONTACT HOURS:

MA 0122 Mathematics Grade 20-2 Equivalent 5 (5-0-0)

Time: 75 Hours

DELIVERY MODE:

This is a lecture based course with a lot of emphasis on students' participation and group work. First, background concepts and rules are reviewed; then students are guided through the workbook, and additional notes and examples are provided as necessary. Several related problems are assigned daily to reinforce new ideas and skills. Students are expected to spend approximately one hour on homework daily.

OBJECTIVES:

1. **Inductive and Deductive Reasoning:**
   a. Analyze and prove conjectures, using inductive and deductive reasoning, to solve problems
   b. Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies.

2. **Properties of Angles and Triangles:**
   a. Derive proofs that involve the properties of angles and triangles.
   b. Generalize the relationships between pairs of angles formed by transversals and parallel lines.

3. **Acute Triangle Trigonometry:**
   a. Solve problems that involve properties of angles and triangles as well as congruent triangles.
   b. Solve problems that involve the cosine law and the sine law, excluding the ambiguous case.

4. **Radicals and Radical Equations:**
   a. Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands (limited to square roots). Simplify radicals, express radicals as mixed or entire, and rationalize monomial denominators.
   b. Solve problems that involve radical equations (limited to square roots or cube roots); determine restrictions on the variable, determine and verify roots, identify and define extraneous roots.

5. **Statistical Reasoning:**
   a. Demonstrate an understanding of normal distribution, including standard deviation and *z*-scores. Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry

and area under the curve. Solve contextual problems involving interpretation of standard deviation, determine z-scores, and solve problems that involve normal distribution.

    b. Interpret statistical data using confidence intervals, confidence levels and margin of error. Make inferences and support a position by analyzing statistical data.

6. Quadratic Functions

    a. Demonstrate an understanding of and determine the characteristics of quadratic functions including: vertex, intercepts, domain and range, and axis of symmetry. Sketch the graph of a quadratic function. Solve contextual problems involving the characteristics of a quadratic function.

7. Quadratic Equations

    a. Solve problems that involve quadratic equations. Determine intercepts and roots using factoring and the quadratic formula. Relate roots of a quadratic equation to zeroes of the corresponding quadratic function and x-intercepts of the graph of a function. Express a quadratic equation in factored form given the zeroes of the corresponding quadratic function or x-intercepts of the graph of the function. Solve contextual problems using a quadratic equation.

8. Rates and Proportional Reasoning

    a. Solve problems that involve application of rates; interpret rates in a given context. Draw a graph to represent rate and explain the relationship between slope and rate.

    b. Solve problems that involve scale diagrams, using proportional reasoning.

    c. Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D and 3-D objects.

TRANSFERABILITY:

This course is listed in the Alberta Transfer Guide. It is accepted at colleges and universities in Alberta as equivalent to Math 20-2.

** 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

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

EVALUATIONS:

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:

4 Assignments	8% (Chapter 1, 2, 5, & 8)
8 Unit Exams	40%
Midterm	17%
Final Exam	35%

COURSE SCHEDULE/TENTATIVE TIMELINE:

MA0122 TIMELINES
WINTER 2013

Unit	TOPIC/DESCRIPTION		Approximate Timeline	Your Mark
1	Inductive and Deductive Reasoning		9 days January 21	
2	Properties of Angles and Triangles		9 days February 01	
3	Acute Triangle Geometry		7 days February 12	
4	Radicals and Radical Equations		7 days February 28	
	Review for Midterm		2 days	
	MIDTERM EXAM		**March 05**	
5	Statistical Reasoning		7 days March 14	
6	Quadratic Functions		7 days March 25	
7	Quadratic Equations		7 days April 4	
8	Rates and Proportional Reasoning		7 days April 15	
	Review for Final Exam		1 day	
	Final Exam		**April 18 - 29**	

STUDENT RESPONSIBILITIES:

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.

1. Attend math classes regularly; your success in math is directly linked to your attendance. Attendance will be taken daily.

2. Arrive on time for class and remain for the duration of the scheduled class.

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. Arrange appropriate childcare; children are not permitted in the classroom.

7. Notify your instructor of any extenuating circumstances which may affect participation in class.

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 Calendar regarding plagiarism, cheating, and the resultant penalties. These are serious issues and will b

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/**