GPRC

DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – FALL 2012
INTRODUCTION TO MATH 0091

INSTRUCTOR: Alan Iwaskow   **PHONE:**   (780) 539-2713

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OFFICE HOURS: 6:45-7:00pm Tuesdays and Thursdays in the Math Lab

PREREQUISITE(S)/COREQUISITE:
MA0081 or equivalent math placement test score

REQUIRED TEXT/RESOURCE MATERIALS:
Package of MA0091 modules, Updated 2011
Scientific calculator

CALENDAR DESCRIPTION:
This course is a modularized program of study which covers basic computational skills, ratio and proportion, percent; an introduction to exponents, basic operations on polynomials, equations, basic algebraic word problems; fundamentals of geometry, introduction to graphing, and statistics.

CREDIT/CONTACT HOURS:
MA 0091 Basic Mathematics III 5 (5-0-0)
Time: 75 Hours

DELIVERY MODE:

MA0091 is a modularized math course divided into 10 separate units called modules.   The instructions for each topic are given in the modules, followed by several examples and exercises. Study the instructions and work through the examples before starting each exercise. The answers for each exercise are given at the end of the module. Check your work often to make sure you understand each new topic. The key to success in working with modules is to ask questions whenever you have difficulty understanding the instructions, the examples, or the exercises. **Do not hesitate to ask for help.**

After each module you must write a test. When writing a test, be sure to show all of your work on the test paper. Marks are given for method as well as final answer. A passing mark of 60% is required on the test before continuing on to the next module. If you are unable to attain this mark, you must review the material and rewrite the test. The first and second test marks will be averaged.

A 50-minute midterm, which will cover the first four modules, must be written by **Tuesday**, **October 23.**   If you miss this date, you will receive a mark of 0% on your midterm. Upon completion of all the course modules, you will write a three hour final exam. Be sure to leave time to prepare for these important exams! They are worth a large percentage of your final grade.

The recommended test date for each module and the midterm is on page 8. Follow these dates as closely as you can. You are encouraged to write a test early if you are prepared. **Consult your instructor immediately if you find yourself falling behind schedule.** Your instructor may need to reassess your math skills to ensure that you are placed in a course where you can be successful. **All tests must be written by Tuesday, December 11.**

Bonus

When you write your module tests on or before the given date, you will be awarded an additional 2% on your score for each test.

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 60% or better.

GRADING CRITERIA:
Your final mark is determined by:

10 module tests	50%
Midterm	15%
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. Review

- Name sets using the roster method.
- Classify statements regarding set membership as true or false and finite or infinite.
- Place the correct inequality symbol between two integers.
- Calculate the absolute value of an integer.
- Write the additive inverse of an integer.
- Add and subtract two or more integers.
- Multiply and divide two or more integers.
- Given decimal notation, write a word name or vice versa.
- Add, subtract, multiply, and divide using decimal notation.
- Add, subtract, multiply, and divide fractions.
- Simplify complex fractions.
- Write a fraction as a decimal or a decimal as a fraction.
- Simplify expressions with integers and fractions using the rules for order of operations.

2. Ratio and Proportion

- Write a ratio to compare two quantities as a fraction in lowest terms.
- Convert a given ratio which contains mixed numbers, decimal notations, and/or whole numbers to lowest terms.
- Write a ratio to compare two quantities with the same units from real life situations.
- Use a rate to compare two quantities with different units.
- Compare unit rates using number relation symbols.
- Write a proportion and determine whether a statement is a true proportion or not.
- Find the missing number in a proportion. Give answers as mixed numbers, unless decimals are used in a proportion.
- Solve applied problems using proportions.
- Give all the pairs of equal angles and all the pairs of corresponding sides in a pair of similar triangles.
- Find lengths of sides of similar triangles using proportions.

3. Percent

- Write a fraction with a denominator of 100 as a percent.
- Rewrite a given statement using the percent notation.
- Write a percent as a decimal and vice-versa.
- Change a percent to a fraction and vice-versa.
- Translate a percent problem into an equation.
- Identify the parts of percent proportion such as percent, base and amount.
- Use the percent proportion to solve percent problems.
- Solve general applied percent problems.

- Solve applied problems when percent is added such as sales tax, commission, interest, etc.

4. Introduction to Exponents

- Convert exponential notation to expanded form.
- Evaluate expressions containing exponents.
- Express a number as a power of an indicated base.
- Use the product rule to multiply exponential expressions with like bases.
- Use the quotient rule to divide exponential expressions with like bases.
- Evaluate an exponential expression with basic operations using the rules for order of operations.
- Use the power rule to raise powers of powers.
- Raise a product to a power and a quotient to a power.
- Evaluate exponential expressions with exponents of 0 and 1.
- Express exponential expressions containing negative exponents with equivalent expressions containing only positive exponents.
- Convert between scientific notation and standard form.
- Multiply and divide using scientific notation.

5. Introductions to Polynomials

- Show complete familiarity with the terminology of polynomials.
- Combine like terms where possible.
- Add polynomials.
- Find the additive inverse of a polynomial.
- Subtract polynomials.
- Multiply monomials.
- Multiply a polynomial by a monomial.
- Divide a monomial by a monomial.
- Divide a polynomial by a monomial.

6. Equations

- Determine whether a number is the solution to a given equation.
- Solve equations using the addition principle.
- Solve equations using the multiplication principle.
- Solve equations using both the addition and the multiplication principles.
- Solve equations in which like terms may need to be collected.
- Solve equations with variables on both sides.
- Solve equations by first removing the parentheses and collecting like terms.
- Solve equations containing fractions.
- Solve equations with variables in the denominator.
- Evaluate a formula.
- Solve a formula for a specified variable and then evaluate.
- Graph an inequality on a number line.

- Solve an inequality using the addition and/or multiplication principles and graph the solution on a number line.

7. Language of Algebra
- Translate a phrase into an algebraic expression.
- Translate a phrase into an algebraic expression requiring grouping.
- Translate a phrase into an algebraic expression requiring a power.
- Translate a phrase into an algebraic equation.
- Solve a word problem by writing an equation.

8. Fundamentals of Geometry
- Identify various geometric terms and their proper use.
- Find the measure of an angle using a protractor.
- Identify complementary and supplementary angles; find the measure of a complement or a supplement of a given angle.
- Use the vertically opposite angle property to find measures of angles.
- Identify pairs of corresponding angles, interior angles, and alternate interior angles and apply properties of transversals and parallel lines to find measures of angles.
- Classify triangles according to the lengths of their sides or the size of their angles
- Learn the key terms related to circle geometry.
- Identify the circle property that relates a tangent to a circle and the radius of the circle.
- Identify the circle property that relates a chord in a circle, its perpendicular bisector, and the centre of the circle.
- Find the measures of angles in a circle using the above properties.
- Find the measures of chords and/or radii using the circle properties.

9. Introduction to Graphing
- Locate a point on a grid.
- Write the ordered pair for a point on a grid.
- Use a graph to find a missing number in a data table.
- Locate a point in a co-ordinate system.
- Indicate which quadrant contains a given point in a co-ordinate system.
- Read and make graphs in a rectangular co-ordinate system.
- State the slope of a line by using rise and run.
- State the slope of a line containing points with co-ordinates.

10. Statistics
- Collect data for various purposes.
- Construct a line graph to show how a specific quantity changes over time.

- Construct a pictograph to make a visual presentation of similar data that is grouped into separate and distinct categories.
- Construct a bar graph to compare similar data that can be grouped into distinct categories.
- Construct a component graph which is a special bar graph that is used to illustrate relationships within categories.
- Construct and read a circle graph with numeric values or percentage values.
- Organize data into class intervals and state the frequency for each class.
- Understand and interpret a histogram.
- Construct a histogram from raw data.
- Construct a frequency polygon from raw or grouped data.
- Find the mean, median, and mode (or the central tendency) of a set of numbers.
- Draw an inference using the central tendency of a set of data.

Topics / Tests / Exams

Module	TOPIC/DESCRIPTION	Recommended Time & Test Date	Date written	Your Mark
1	Review - four basic operations on decimals, fractions, & integers -order of operations	September 13 Thursday		
2	Ratio and Proportion -Simplifying and reducing ratios -rates and proportions -similar figures	September 25 Tuesday		
3	Percent -changing percent to decimals & fractions -changing decimals and fractions to percent -application of percent	October 4 Thursday		
4	Introduction to Exponents -laws of exponents -scientific notation	October 11 Thursday		
5	Introduction to Polynomials -combining like terms -basic operations with polynomials	October 18 Thursday		
	MIDTERM must be written on or before	**Tuesday, October 23**		
6	Equations and Inequalities -solving -evaluating expressions, formulas -rearranging formulas	November 1 Thursday		
7	Language of Algebra -writing algebraic expressions and equations -word problems	November 8 Thursday		
8	Fundamental of Geometry -plane geometry & polygons -Parallel Line Theorem -circle geometry	November 22 Thursday		
9	Introduction to Graphing -reading and making graphs in the rectangular coordinate system -slope of a line	November 29 Thursday		
10	Statistics -organizing data, graphs -measures of central tendency	December 6 Thursday		
	FINAL EXAM - 3 HOURS	**TBA (Dec. 13 - 22)**		

Fall 2012 Night Class Schedule FINAL EXAMS TO BE ANNOUNCED (December 13-22)

	MA0081	MA0091	MA0110	MA0120
Sep 6 Th	M1 Ex 1-6	M1 Ex 1-6	M1 Ex 1-3	M1 Ex 1-3
Sep 11 Tu	M1 Ex 7-10	M1 Ex 7-12	M1 Ex 4-6	M1 Ex 4-6
Sep 13 Th	M1 Rev, Test 1 M2 Ex 1	M1 Ex 13-14, Rev, T1	Rev, Test 1	M1 Rev, Test 1 M2 Ex 1-3
Sep 18 Tu	M2 Ex 2-4	M2 Ex 1-4	M2 Ex 1-2	M2 Ex 4-5
Sep 20 Th	M2 Ex 5-6, Rev	M2 Ex 5-8	M2 Ex 3-4	M2 Rev, Test 2
Sep 25 Tu	M2 Test 2 M3 Ex 1-4	M2 Ex 9, Rev, T2	M2 Ex 5-6	M3 Ex 1-5
Sep 27 Th	M3 Ex 5-9	M3 Ex 1-4	M2 Ex 7, Rev, Test 2	M3 Ex 6-9
Oct 2 Tu	M3 Ex 10, Rev	M3 Ex 5-8	M3 Ex 1-3	M3 Ex 10, Rev Test 3
Oct 4 Th	Test 3 M4 Ex 1-2	M3 Ex 9, Rev, T3 M4 Ex 1	M3 Ex 4-5	M4 Ex 1-4
Oct 9 Tu	M4 Ex 3-5	M4 Ex 2-5	M3 Rev, Test 3	M4 Ex 5-6
Oct 11 Th	M4 Ex 6- 9	M4 Rev, T4 M5 Ex 1-2	M4 Ex 1-3	M4 Rev, Test 4 M5 Ex 1-2
Oct 16 Tu	M4 Rev, Test 4	M5 Ex 3-7	M4 Ex 4, Rev	M5 Ex 3-6
Oct 18 Th	MT Review **MIDTERM**	M5 Ex 8, Rev, T5 Midterm Review	Test 4, Midterm Review	M5 Rev, Test 5
Oct 23 Tu	M5 Ex 1-2	Review, **MIDTERM** M6 Ex 1	MT Rev, **MIDTERM**	Midterm Review **MIDTERM**
Oct 25 Th	M5 Ex 3-5	M6 Ex 2-5	M5 Ex 1-3	M6 Ex 1-4
Oct 30 Tu	M5 Ex6-8	M6 Ex 6-10	M5 Ex 4-6	M6 Ex 3-5
Nov 1 Th	M5 Rev, T5 M6 Ex1	M6 Ex 11, Rev, T6 M7 Ex 1-2	M5 Ex 7-8, Rev, Test 5	Rev, Test 6 M7 Ex 1
Nov 6 Tu	M6 2-4	M7 Ex 3-7	M6 Ex 1-2	M7 Ex 2-4
Nov 8 Th	M6 Rev, T6 M7 Ex1	M7 Ex 8, Rev, T7	M6 Ex 3-4	M7 Ex 5-6, Rev
Nov 13 Tu	Fall Break	Fall Break	Fall Break	Fall Break
Nov 15 Th	M7 Ex 2-5	M8 Ex 1-3	M6 Rev, Test 6 M7 Ex 1-2	Test 7 M8 Ex 1-2
Nov 20 Tu	M7 Rev, T7 M8 Ex 1-2	M8 Ex 4-5, Rev	M7 Ex 3-4	M8 Ex 3-5
Nov 22 Th	M8 Ex 3-5	T8 M9 Ex 1	M7 Ex 5-6	M8 Ex 6-7
Nov 27 Tu	M8 Ex 6-8, Rev	M9 Ex 2-5	M 7 Rev, Test 7	M8 Rev, Test 8 M9 Ex 1
Nov 29 Th	Test 8 M9 Ex 1-3	M9 Rev, T9 M10 Ex 1-2	M8 Ex 1-2	M9 Ex 2-5
Dec 4 Tu	M9 Ex 4-6	M10 Ex 3-7	M8 Ex 3-5	M9 Ex 6-9
Dec 6 Th	M9 Rev, Test 9	M10 Ex 8-9, Rev, T10	Test 8	M9 Ex 10, Rev, Test 9
Dec 11 Tu	Final Review	Final Review	Final Review	Final Review
Dec 13-22	Final Exam TBA	Final Exam TBA	Final Exam TBA	Final Exam TBA

STUDENT RESPONSIBILITIES:

In addition to the *Student Rights and Responsibilities* as set out in the **College Calendar** (pages 47-50), 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 pages 48-49 of the College Calendar regarding plagiarism, cheating, and the resultant penalties. These are serious issues and will be dealt with severely.