GPRC

DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – FALL 2013

<u>INTRODUCTION TO MATH 0123</u>

INSTRUCTOR:	Sukhvir Sandhu	**PHONE:**	(780) 539 - 2234
OFFICE:	Math Lab A210 or C310	**E-MAIL:**	ssandhu@gprc.ab.ca
OFFICE HOURS:	Daily, 8:30 - 9:00 am, 10:00 - 11:00 am, and 3:30 - 4:00 pm		

PREREQUISITE(S)/COREQUISITE:

MA0113, ≥ 60% in Math 10–C or 10–3 in the last 2 years, or equivalent math placement test score

REQUIRED TEXT/RESOURCE MATERIALS:

Math Works 11 Workbook, scientific calculator, graph paper

(Math Works 11 Textbook will be available to students in the Math Lab during lab hours.)

CALENDAR DESCRIPTION:

This is a modularized course which covers slope and rate of change; graphical representation of data and statistical reasoning; surface area, volume, and capacity of 3–D objects; trigonometry of right triangles and scale representations; financial services and personal budgets. Emphasis is placed on applications related to trades and personal use.

CREDIT/CONTACT HOURS:

MA 0123, Mathematics 20 - 3 Equivalent 5 (5-0-0)

Time: 75 Hours

DELIVERY MODE:

MA 0123 is a modularized math course divided into 7 separate topics called chapters. Each chapter is further divided into sections. Each section introduces one new skill at a time followed by a new term written in **bold letters,** with its explanation on the left margin, up to a maximum of four to six new terms. Each new skill is demonstrated with an example with clearly stated instructions, followed by **Build Your Skills** exercise questions. Study the term and its explanation and work through the example before starting the exercise. The answers to the Build Your Skills questions are available near the end of the Workbook under the title **Answer Key**. The mastery of all the skills covered under each section is further tested in an exercise called **Practice Your New Skills.** Check your work often 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.**

After each chapter 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 for final answers. A passing mark of 60% is required on the test before continuing on to the next chapter. 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 three chapters, must be written by **Monday, October 21.** If you miss this date, you will receive a mark of 0% on your midterm. Upon completion of all the seven chapters, 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 chapter and the midterm is included in this outline. 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 **December 10.**

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:

7 Chapter tests	42%
Midterm	23%
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

TRANSFERABILITY:
This course is listed in the Alberta Transfer Guide. It is accepted at colleges and universities in Alberta as equivalent to Mathematics 20 – 3.

Learning Outcomes:

1. **Slopes and Rate of Change**
   - Demonstrate an understanding of slope
     - as rise over run
     - as rate of change
     - by solving problems
   - Explain, using illustrations, the relationship between slope (tangent ratio) and angle of elevation.
   - Develop an understanding and inter-connection among grade, angle of elevation, and distance.

2. **Graphical Representations**
   - Solve problems that involve creating and interpreting graphs, including:
     - bar graphs
     - histograms
     - line graphs
     - circle graphs
   - Investigate the appropriate use of different types of graphs.
   - Compare the effects of different graphing strategies.

3. **Surface Area, Volume, and Capacity**
   - Solve problems that involve SI and imperial units in surface area of three-dimensional objects.
   - Estimate and calculate the volume and capacity of a three-dimensional object.
   - Describe the relationship between volumes of :
     - cones and cylinders with the same base and height
     - pyramids and prisms with the same base and height
   - Modify the surface area and volume measurements when their dimensions increase or decrease.

4. **Trigonometry of Right Triangles**
   - Use trigonometry to calculate distances and angles.
   - Sketch a representation of a given description of a 2−D or 3−D context and determine if a solution to a problem involves one, two, or three right triangles.
   - Solve complex problems in three dimensions by breaking them down into two or three right-angled triangles.

5. **Scale Representations**
   - Make scale models.
   - Create drawings that represent two and three dimensions.
   - Draw a 2−D representation of a given 3−D object.
   - Calculate the full-size measurements of objects from drawings.
   - Construct a model of a 3−D object, given the top, front, and side views.
   - Identify the point of perspective of a given one-point perspective drawing of a 3−D object.

6. **Financial Services**
   - Demonstrate an understanding of financial institution services used to access and manage finances that best meet your needs.
   - Calculate simple and compound interest, and explain their relationship.
   - Describe the advantages and disadvantages of debit or credit card purchases and make informed decisions about the use of credit.
   - Describe ways that ensure the security of personal and financial information.

7. **Personal Budgets**
   - Identify income and expenses that should be included in a personal budget.
   - Create a personal budget based on given income and expense data.
   - Modify a budget to achieve a set of personal goals.
   - Investigate and analyze a budget.
   - Prioritize expenses to balance a budget.

Fall 2013
MA0123 Tests / Exams

Chapter	Topic	Recommended Time & Test Date	Date written	Your mark
1	Slope and Rate of Change	9 Days Wednesday, Sept. 18		
2	Graphical Representations	9 Days Wednesday, Oct. 1		
3	Surface Area, Volume, and Capacity	11 Days Thursday, Oct. 17		
	Review for the midterm	1 Day		
	Midterm – must be written on or before	**Monday, Oct. 21**		
4	Trigonometry of Right Triangles	7 Days Wednesday, Oct. 30		
5	Scale Representations	9 Days Thursday, Nov. 14		
6	Financial Services	9 Days Wednesday, Nov. 27		
7	Personal Budgets	8 Days Monday, Dec. 9		
	Review	1 Day		
	Final Exam – 3 Hours	**T.B.A** **December 12 - 20**		

MA0123 Homework Schedule

Sept. 5   Do: Get familiar with the Math Works Workbook and get to know each other.

Chapter 1:   Slope and Rate of Change

Sept. 6	Do:	Review on page 9 to Build Your Skills ending on page 16.
Sept. 9	Do:	Example 5 on page 16 to Build Your Skills ending on page 22.
Sept. 10	Do:	New Skills on page 23 to Build Your Skills ending on page 29.
Sept. 11	Do:	Example 4 on page 29 to Practice Your New Skills ending on page 35.
Sept. 12	Do:	Rate of Change on page 36 to Build Your Skills ending on page 46.
Sept. 13	Do:	Example 3 on page 47 to Practice Your New Skills ending on page 54.
Sept. 16	Do:	Chapter Test on page 55-57.
Sept. 17	Do:	Review for the test.
Sept. 18	**Test #1 (Wednesday)**	

Chapter 2:   Graphical Representation

Sept. 19	Do:	Broken Line Graphs on page 58 to Build Your Skills ending on page 65.
Sept. 20	Do:	New Skills on page 66 to Build Your Skills ending on page 71.
Sept. 23	Do:	New Skills on page 72 to Practice Your New Your Skills ending on page 79.
Sept. 24	Do:	Bar Graphs on page 80 to Build Your Skills ending on page 89.
Sept. 25	Do:	Example 3 on page 90 to Practice Your New Skills ending on page 99.
Sept. 26	Do:	Histogram on page 100 to Practice Your New Skills ending on page 108.
Sept. 27	Do:	Circle Graphs on page 109 to Practice Your New Skills ending on page 118
Sept. 30	Do:	Chapter Test on page 119 to 123 & Review for the test
Oct. 1	**Test #2 (Tuesday)**	

Chapter 3:   Surface Area, Volume, and Capacity

Oct. 2	Do:	Surface Area on page 124 to Build Your Skills ending on page 131.
Oct. 3	Do:	New Skills on page 132 to Build Your Skills ending on page 142.
Oct. 4	Do:	Example 7 on page 143 to Practice Your New Skills ending on page 148.

Oct. 7	Do:	Working with Circles on page 149 to Build Your New Skills on page 153.
Oct. 8	Do:	New Skills on page 154 to Build Your Skills ending on page 163.
Oct. 9	Do:	New Skills on page 163 to Practice Your New Skills on page 169.
Oct. 10	Do:	New Skills on page 170 to Build Your skills on page 178
Oct. 11	Do:	Practice Your New Skills on page 179 To Build Your Skills on page 191
Oct. 15	Do:	Practice Your New Skills on pages 192 & 193, Chapter Test on page 194 - 196
Oct. 16	Do:	Review for the test
Oct. 17	**Test #3**	**(Thursday)**

Midterm on Oct. 21 (Monday)

Chapter 4:   Trigonometry of Right Triangles

Oct. 22	Do:	Study page 197 to Build Your Skills ending on page 203.
Oct. 23	Do:	Example 3 on page 204 to Practice Your New Skills ending on page 213.
Oct. 24	Do:	Example 1 on page 214 to Build Your Sills ending on page 220.
Oct. 25	Do:	Example 3 on page 221 to Practice Your New Skills ending on page 226.
Oct. 28	Do:	Chapter Test page 226 - 230
Oct. 29	Do:	Review for the test
Oct. 30	**Test #4**	**(Wednesday)**

Chapter 5:   Scale Representations

Oct. 31	Do:	Study page 231 to Build Your Skills ending on page 240.
Nov. 1	Do:	Practice Your New Skills on page 241 to Build Your Skills ending on page 248.
Nov. 4 & 5	Do:	Example 2 on 249 to Practice Your Skills ending on page 258.
Nov. 6	Do:	Example 1 on page 259 to Build Your Skills ending on 266.
Nov. 7	Do:	Example 3 on page 266 to Practice Your New Skills ending on page 272.
Nov. 12	Do:	Chapter Test page 273 – 278.
Nov. 13	Do:	Review for the test
Nov. 14	**Test #5**	**(Thursday)**

Chapter 6:   Financial Services

Nov. 15	Do:	New Skills on page 279 to Build Your Skills on page 286.
Nov. 18	Do:	Practice Your New Skills on page 287 to Build Your Skills on page 296.
Nov. 19	Do:	Example 3 on page 297 to Build Your Skills ending on page 304.
Nov. 20	Do:	Credit Cards on page 305 to Build Your Skills ending on page 312.
Nov. 21	Do:	Practice Your New Skills on page 313 to Build Your Skills ending on page 319.
Nov. 22	Do:	Example 3 on page 319 to Practice Your New Skills ending on page 324.
Nov. 25	Do:	Chapter test page 325 – 328
Nov. 26	Do:	Review for the test
Nov. 27	**Test #6**	**(Wednesday)**

Chapter 7:   Personal Budgets

Nov. 28	Do:	Study page 329 to Build Your Skills ending on page 335.
Nov. 29	Do:	Example 3 on page 336 to Practice Your New Skills ending on page 341.
Dec. 2	Do:	Creating a Budget on page 342 to Build Your Skills ending on page 349.
Dec. 3	Do:	Example 2 on page 349 to Build Your Skills ending on page 356.
Dec. 4	Do:	Example 2 on page 356 to Practice Your New Skills ending on page 366.
Dec. 5	Do:	Chapter test page 367 – 372
Dec. 6	Do:	Review for the test.
Dec. 9	**Test #7**	**(Monday)**

Final Exam (Dec. 12-20)

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 OF 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 refer to the College website (Home > Admission > Tuition > Fees) for the printing policy which limits the free use of paper; extra charges will be applied if the limit is exceeded.