GPRC

DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – FALL 2015

MA 0133 A2B2- Mathematics Grade 30-3 Equivalent – 5 (5-0-0) HS

INSTRUCTOR:	Sukhvir Sandhu	**PHONE:**	780-539-2810 or 2234
OFFICE:	Math Lab or B301B	**EMAIL:**	SSandhu@gprc.ab.ca

OFFICE HOURS: Daily 10:00 to 11:00 am, or by appointment

PREREQUISITES:
MA0123 or greater than or equal to 60% in Math 20–3 in the last 2 years

REQUIRED TEXT/RESOURCE MATERIALS:
Math Works 12 Workbook, scientific calculator, graph paper
(Math Works 12 Textbook will be available to students in the Math Lab during lab hours.)

CALENDAR DESCRIPTION:

This is a modularized course which covers linear relations; limits to measurement; statistics; probability and odds; properties of geometric figures; transformations; trigonometry of oblique triangles; planning for and owning a small business. Emphasis is placed on applications related to trades and personal use.

CREDIT/CONTACT HOURS: Five hours/week

DELIVERY MODES:

MA 0133 is a modularized math course divided into 8 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. 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 all the exercises are available on-line under the link

. 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 four chapters, must be written by **Tuesday, October 20.** 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 8.**

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.

OBJECTIVES:
The aims of this course are to provide students with the concept linear relations; limits to measurement; statistics; probability and odds; properties of geometric figures; transformations; trigonometry of oblique triangles; planning for and owning a small business. Emphasis is placed on applications related to trades and personal use.

LEARNING OUTCOMES:
Learning Outcomes:

1. **Linear Relations**
   - Recognize linear and non-linear relations in graphs, tables of values, and equations.
   - Create table of values and graph.
   - Write equations representing linear relations.
   - Study trends in data displayed in scatterplots and use equations to express linear trends.
   - Use equations to extrapolate and interpolate data based on a trend.

2. **Limits to Measurement**
   - Explore the concept of measurement accuracy.
   - Examine the concept of measurement precision.
   - Distinguish between accuracy and precision.
   - Calculate measurement uncertainty.
   - Examine acceptable tolerance in various workplaces.

3. **Statistics**
   - Discover different forms for expressing an average.
   - Determine what a percentile rank is and how to calculate it.
   - Investigate the similarities and differences between average and percentiles.

4. **Probability and Odds**
   - Express a given probability as a fraction, decimal, percent, or in a statement form.
   - Calculate the probability of an event occurring based on a data set or based on the odds for or against.
   - Explain the difference between odds and probability.
   - Apply probability to analyze and interpret problems.

5. **Properties of Geometric Figures**
   - Describe and show properties of triangles, using side lengths and angle measures.
   - Describe and show properties of quadrilaterals, using side lengths, angle measures, diagonal lengths, and angle of intersection.
   - Describe and show properties of regular polygons, including pentagons, hexagons, and octagons.
   - Identify uses of different geometric shapes.

6. **Transformations**
   - Identify and draw transformations performed on two-dimensional shapes.
   - Identify transformations performed on three-dimensional objects.
   - Draw and analyze two-dimensional shapes that result from a combination of successive transformations.
   - Create, analyze, and describe designs in all four quadrants of a coordinate plane.
   - Solve problems involving transformations.

7. **Trigonometry**
   - The students will work with oblique triangles to solve for:
     - an unknown side length using Sine law;
     - an unknown angle measure using Sine law;
     - an unknown side length using Cosine law;
     - an unknown angle measure using Cosine law.

8. **Owning a Small Business**
   - Explore whether a business is likely to succeed.
   - Investigate how a business earns and spends money.
   - Examine whether a business makes or loses money.
   - Explore ways to improve the financial performance of a business.

GRADING CRITERIA:

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	**4-point Equivalent**	**Percentage of Class**	**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 30 – 3.

Winter 2015
MA0133 Tests / Exams

Chapter	Topic	Recommended Time & Test Date	Date written	Your mark
1	Linear Relations	Tuesday, Sept. 15		
2	Limits to Measurements	Thursday, Sept. 24		
3	Statistics	Tuesday, Oct. 6		
4	Probability and Odds	Friday, Oct. 16		
	Midterm – must be written on or before	**Tuesday, Oct. 20**		
5	Properties of Geometric Figures	Friday, Oct. 30		
6	Transformations	Tuesday, Nov. 10		
7	Trigonometry	Tuesday, Nov. 24		
8	Owning a Small Business	Friday, Dec. 4		
	Final Exam – 3 Hours	**T.B.A April 10 – 19**		

GRADING CRITERIA:

Your final mark is determined by:

8 Chapter tests	48%
Midterm	17%
Final Exam	35%

STUDENT RESPONSIBILITIES:

In addition to the *Student Rights and Responsibilities* as set out in the college website: https://www.gprc.ab.ca/files/forms_documents/StudentRightsandResponsibilities.pdf 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.

STUDENT PRINTING POLICY:
Please refer to the College website:
https://www.gprc.ab.ca/files/policies/admin/StudentPrintingPolicy.pdf
for the printing policy which limits the free use of paper; extra charges will applied if the limit is exceeded.

STATEMENT ON PLAGIARISM AND CHEATING: 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

http://www.gprc.ab.ca/files/forms_documents/Student_Misconduct.pdf

MA0123 Homework Schedule

Sept. 2 Do: Get familiar with the Math Works Workbook and get to know each other.

Chapter 1:   Linear Relations

Sept. 3	Do:	Review on page 9 to Build Your Skills ending on page 20.
Sept. 4	Do:	New Skills on page 20 to Build Your Skills ending on page 31.
Sept. 8	Do:	New Skills on page 32 to Build Your Skills ending on page 47.
Sept. 9	Do:	Example 6 on page 47 to Example 3 ending on page 64.
Sept. 10	Do:	Build Your Skills on page 65 to Practice Your New Skills ending on page 71.
Sept. 11	Do:	Chapter Test on page 72 - 76.
Sept. 14	Do:	Review for the Test #1
Sept. 15	**Test #1 (Tuesday)**	

Chapter 2:   Limits to Measurement

Sept. 16	Do:	Review on page 71 to Build Your Skills ending on page 80
Sept. 17	Do:	New Skills on page 81 to Build Your Skills ending on page 84.
Sept. 18	Do:	Example 5 on page 85 to Practice Your New Skills ending on page 91.
Sept. 21	Do:	Review Your Skills on page 91 to Build Your Skills ending on page 99.
Sept. 22	Do:	Example 4 on page 99 to Chapter Test ending on page 108
Sept. 23	Do:	Review for the Test #2.
Sept. 24	**Test #2 (Thursday)**	

Chapter 3:   Statistics

Sept. 25	Do:	Review on page 109 to Build Your Skills ending on page 114.
Sept. 28	Do:	New Skills on page 115 Practice Your New Skills ending on page 121.
Sept. 29	Do:	New Skills on page 122 to New Skills ending on page 128
Sept. 30	Do:	Build Your Skills on page 128 to Build Your Skills ending on page 134.
Oct. 1	Do:	Example 2 on page 135 to Practice Your New Skills ending on page 140.
Oct. 2	Do:	Chapter Test on page 140 to page 142.
Oct. 5	Do:	Review for the Test #3
Oct. 6	**Test #3 (Tuesday)**	

Chapter 4:   Probability and Odds

Oct. 7	Do:	Review on page 143 to Build Your Skills ending on page 150.
Oct. 8	Do:	New Skills on page 150 to Build Your Skills ending on page 158.
Oct. 9	Do:	Example 3 on page 158 to Build Your Skills ending on page 165.
Oct. 13	Do:	Example 2 on Page 165 to Practice Your New Skills ending on page 170
Oct. 14	Do:	Chapter Test on page 171 to page 173.
Oct. 15	Do:	Review for the Test #4
Oct. 16	**Test # 4 (Friday)**	

Midterm on Oct. 20 (Tuesday)

Chapter 5: Properties of Geometric Figures

Oct. 21	Do:	Triangles on page 174 to Build Your Skills ending on page 183.
Oct. 22	Do:	Example 4 on page 183 to Practice Your New Skills ending on page 188.
Oct. 23	Do:	Review on Page 189 to Build Your Skills ending on page 199.
Oct. 26	Do:	Practice Your New Skills on page 200 to Build Your Skills ending on page 209.
Oct. 27	Do:	Practice Your New Skills on page 210 ending on page 212.
Oct. 28	Do:	Chapter Test on Page 213 to page 216.
Oct. 29	Do:	Review for the Test #5
Oct. 30	**Test #5 (Friday)**	

Chapter 6: Transformations

Nov. 2	Do:	Single Transformation on page 217 to Example 2 ending on page 214.
Nov. 3	Do:	Build Your Skills on page 225 to Example 5 ending on page 231.
Nov. 4	Do:	Build Your Skills on page 232 to Example 1 ending on page 241.
Nov. 5	Do:	Build Your Skills on page 242 to Practice Your New Skills ending on page 251.
Nov. 6	Do:	Chapter Test on page 252 to page 255.
Nov. 9	Do:	Review for the test #6
Nov. 10	**Test #6 (Tuesday)**	

Chapter 7: Trigonometry

Nov. 16	Do:	The Sine Law on page 256 to Example 4 ending on page 266.
Nov. 17	Do:	Build Your Skills on page 266 to Practice Your New Skills ending on page 274.
Nov. 18	Do:	The Cosine Law on page 275 to Build Your Skills ending on page 283.
Nov. 19	Do:	Practice Your New Skills from page 284 to 286.
Nov. 20	Do:	Chapter Test from page 287 to page 291.
Nov. 23	Do:	Review for the Test #7
Nov. 24	**Test #7 (Tuesday)**	

Chapter 8: Owning a Small Business

Nov. 25	Do:	Start a Small Business on page 292 to Example 5 ending on page 302.
Nov. 26	Do:	Build Your Skills on page 303 to Build Your Skills ending on page 311.
Nov. 27	Do:	New Skills on page 311 to Practice Your New Skills ending on page 320
Nov. 30	Do:	New Skills on page 321 to Build Your Skills ending on page 328.
Dec. 1	Do:	Example 3 on page 329 to Practice Your New Skills ending on page 334.
Dec. 2	Do:	Chapter Test on page 335 to page339.
Dec. 3	Do:	Review for the Test #8
Dec. 4	**Test #8 (Friday)**	

Final Review (Dec. 7 & Dec. 8)

Final Exam (Dec. 10 - 19)