DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – FALL 2014

MA0132: MATHEMATICS GRADE 12 EQUIVALENT (PRINCIPLES 30-2)

INSTRUCTOR:	Joelle Reynolds	**PHONE:**	780-539-2204
OFFICE:	C305	**EMAIL:**	jreynolds@gprc.ab.ca
	By appointment in office or via computer,		
OFFICE HOURS:	W/F 1 pm – 2 pm or T/R 10 - 11 am		

PREREQUISITE(S)/COREQUISITE:

MA0122 or MA0120 or equivalent, or equivalent math placement test score, or Math 20-1 or 60% or higher in Math 20-2 or equivalent within the previous two years

REQUIRED TEXT/RESOURCE MATERIALS:

- Principles of Mathematics 12 Nelson Education Ltd.
- *Non-graphing* scientific calculator (Texas Instruments TI-30XIIS preferred, but not essential)
- Graph paper (a blue post-it note graph pad is ideal, sold in the GPRC Bookstore)
- Computer Access, Microsoft Excel
- **NOTE: There is approximately 200 pages (single sided) worth of printing recommended for this course**

CALENDAR DESCRIPTION:

This course explores set theory, counting methods, probability, rational expressions and equations, as well as polynomial, exponential, logarithmic and sinusoidal functions.

CREDIT/CONTACT HOURS:

5 (6-0-0) 90 contact hours

DELIVERY MODE:

This is a lecture based course. First, background concepts and rules are reviewed; then students are guided through notes and examples. Several related problems are assigned daily to reinforce new ideas and skills.

OBJECTIVES:

Unit 1 Set Theory

- Sort numbers using set notation and Venn diagrams.
- Determine the number of elements in a set.
- Determine the relationships between sets.
- Represent the intersection and union of two sets.
- Apply set theory to solve problems.

Unit 2 Counting Methods

- Apply the fundamental counting principle to determine the number of different ways to perform multi-step operations.
- Use factorial notation to determine permutations and combinations, or to solve for *n* or *r.*
- Determine the number of permutations of *n* different objects when all, or part, are used at a time.
- Determine the number of permutations of *n* objects when some of them are identical.
- Define combinations of *n* objects.
- Determine the number of different combinations when *r* objects are selected from *n* different objects.
- Apply the principle of combinations to different situations, and solve related problems.

Unit 3 Probability

- Distinguish between experimental and theoretical probability.
- Interpret odds and relate them to probability.
- Solve probability questions that involve permutations and combinations.
- Solve problems that involve mutually exclusive and non-mutually exclusive events.
- Solve problems that involve dependent and independent events.

Unit 4 Rational Expressions and Equations

- Determine equivalent rational expressions.
- Determine non-permissible values.
- Perform operations with rational expressions: add, subtract, multiply and divide .
- Simplify rational expressions that require factoring of binomials.
- Solve rational equations.

Unit 5 Polynomial Functions

- Identify characteristics of graphs of polynomial functions.
- Determine characteristics of graphs from the leading coefficient and constant term.
- Determine the best fit line for a set of data, and use the function to solve a problem.
- Determine the curve of best fit for a set of data and use the function to solve problems.

Unit 6 Exponential Functions

- Use the equation of an exponential function to predict the characteristics of its graph and identify the graph.
- Solve exponential equations by using common bases and graphically.
- Solve problems modelled with exponential functions.
- Represent data using an exponential function and interpret the graph to solve problems.
- Solve loan, mortgage and depreciation problems using exponential functions.

Unit 7 Logarithmic Functions

- Determine the characteristics of logarithmic functions from an equation.
- Estimate and determine the values of logarithmic expressions.
- Understand and apply the laws of logarithms.
- Use logarithms to solve exponential equations.
- Model situations using logarithmic functions and interpret the models.

Unit 8 Sinusoidal Functions

- Sketch angles in degree and radian measure.
- Estimate the radian measure of an angle given the degree measure.
- Describe the characteristics of sinusoidal functions using their graphs and equations.
- Graph data for and model a situation using a sinusoidal function.
- Solve problems using sinusoidal function models.

TRANSFERABILITY:

This course is listed in the Alberta Transfer Guide. It is accepted at colleges and universities in Alberta as equivalent to Math 30-2.

**** Grades 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)**

EVALUATION:

Quizzes and Assignments 20%

Section Tests 28%

4 at 7% each

Midterm Exam 12%

The midterm will cover material from units 1 through 4.

Final Exam: Cumulative 40%

Cumulative (covers material from units 1 through 8).

STUDENT RESPONSIBILITIES:

MA0132 is a prerequisite for many post-secondary programs. In taking this course, the primary goal is that students will develop their understanding of and ability to use mathematics. However, students in this course are also learning how to prepare for the demands and expectations of post-secondary education. Please read and ensure you understand the following expectations before we begin:

Regular attendance and participation is required.

Attendance is a strong indicator of student success. Attendance will be taken daily and may influence discretionary decisions made by the instructor. Students will be required to answer questions in class.

Complete Daily Homework

SCHEDULE at least 1 hour of study per day in a distraction–free area where you have quick access to assistance. I would suggest that you meet with a focused study partner, go to the library or visit me during office hours or scheduled appointments. If possible, schedule this time immediately before or after class. You may also want to have a personal device to access online tools nearby.

Completed Quizzes and Exams as scheduled

Quizzes and assignments must be completed on the specified date. No re-writes or extensions will be permitted under any circumstance. If extenuating circumstances cause you to miss a quiz or assignment, please contact me as soon as possible to discuss the situation.

If an emergency prevents attendance **on an exam day**, students must contact me **immediately** via phone or email, and may be asked to provide documentation to justify their absence. Students who are approved to write at an alternate time will then be scheduled to write *an alternate version* of the exam at the first available opportunity. No unspecified electronics will be permitted during exams.

Take responsibility for your learning

Your instructor will monitor and periodically update you with your progress, but it is ultimately **the student's responsibility** to direct and manage their own learning. It is your job to recognize when you require additional support and to seek those supports out.

Communicate with your instructors.

You can communicate with your instructors via:

- Office Hours via appointment, in the instructor's office or online.
- Telephone (number provided on the front page of this outline)
- Email – (address provided on the front page of this outline).

Students are expected to check Moodle as well as GPRC email on a regular basis

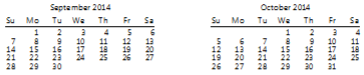
If there are major influences that may interfere with your learning, inform your instructor well in advance, so that arrangements can be made to work around them if possible. If you are concerned with your progress in the course, please make an appointment with you instructor to discuss strategies for success.

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with according to college policy.

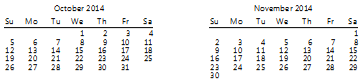
This schedule is tentative, and may change at any point in the course at the discretion of the instructor.

September 2014



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Aug 31	Sep 1	2	3	4 Course Intro GS1	5 1.1 1.2	6
7	8	9 1.3	10 1.4	11 Chapter 1 Review GS2	12 2.1	13
14	15	16 2.2	17 2.3	18 2.4	19 2.5 2.6	20
21	22	23 2.7	24 Chapter 2 Review	25 Test 1	26 GS3	27
28	29	30 3.1 3.2	Oct 1	2	3	4

October 2014



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Sep 28	29	30	Oct 1 3.3	2 3.4	3 3.5	4
5	6	7 3.6	8 Chapter 3 Review GS4	9 4.1	10 4.2	11
12	13	14 4.3	15 4.4	16 4.5	17 Chapter 4 Review	18
19	20	21 Test 2	22 Review	23 Midterm	24 GS5	25
26	27	28 5.1 5.2	29 5.3 5.4	30 Chapter 5 Review GS6	31 6.1 6.2	Nov 1

November 2014

November 2014

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

December 2014

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Oct 26	27	28	29	30	31	Nov 1
2	3	4 6.3	5 6.4	6 6.5	7 Chapter 6 Review	8
9	10	11	12 Test 3	13 GS7	14 7.2	15
16	17	18 7.1	19 7.3	20 7.4	21 7.5	22
23	24	25 Chapter 7 Review GS8	26 8.1	27 8.2 8.3	28 8.4	29
30	Dec 1	2	3	4	5	6

Reynolds, Joelle 1 8/26/2014 1:54 PM

December 2014

December 2014

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

January 2015

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Nov 30	Dec 1	2 8.5	3 Chapter 8 Review	4 Test	5 Course Review	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	Jan 1, 15	2	3

Reynolds, Joelle 1 8/26/2014 1:55 PM