



DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2015

MA0132 MATHEMATICS GRADE 12 EQUIVALENT (PRINCIPLES 30-2)

INSTRUCTOR:	Joelle Reynolds	PHONE:	780-539-2204
OFFICE:	C305	EMAIL:	jreynolds@gprc.ab.ca
OFFICE HOURS:	T/R 1 – 2:20 pm		

PREREQUISITE:

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, graph paper

Computer Access, Microsoft Excel

NOTE: There is approximately 150 pages (single sided) worth of printing recommended for this course

CALENDAR DESCRIPTION:

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

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:

After completing MA0132, students will be able to:

Unit 1 Set Theory

- Use 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:

Assignments	20%
8 at 2.5%	
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:

1. Regular attendance and participation is required.
2. Check Moodle as well as GPRC email on a regular basis.
3. Assignments must be submitted on time.
4. Exams must be written on the days announced in class.
5. If an emergency prevents attendance on an exam day, students must contact me as soon as possible via phone or email, and may be asked to provide documentation to justify their absence.
6. No unspecified electronic devices will be permitted during exams.
7. Complete daily homework. **At least** 1 hour of study per day outside of class time is required.
8. Behaviors that interfere with learning are not acceptable.
9. Take responsibility for your learning.
10. Communicate all requests regarding appointments, etc via email.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the College Policy on Student Misconduct: Plagiarism and Cheating at

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

**Note: all Academic and Administrative policies are available at <https://www.gprc.ab.ca/about/administration/policies/>

MA0132 Tentative Timeline Winter 2015

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MA0130 Tentative Timeline Winter 2015

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