



DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – FALL 2018

MA0132 A2: Mathematics Grade 12 Equivalent (Principles 30-2) – 5 (6-0-0)

6 hours per week (90 Hours)

INSTRUCTOR: Dr. Shohreh Rahmati
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OFFICE HOURS:
M, T, W, R 10-11AM

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

PREREQUISITE: MA0122 or MA0120 or equivalent, or equivalent 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:

- iWrite Foundations of Mathematics 12 Workbook
- Non-graphing scientific calculator

DELIVERY MODE(S): This is a lecture based course.

Lectures: T, W, R, F 13:00-14:20 PM (A301)

COURSE OBJECTIVES: To develop logical reasoning and critical thinking skills related to uncertainty. To develop algebraic and graphical skills through the study and polynomial, rational, exponential, logarithmic, and sinusoidal functions.

LEARNING OUTCOMES: After successful completion of MA0132, students will be able to:

Unit 1: Logical Reasoning and Set Theory

- Analyze puzzles and games that involve numerical and logical reasoning, using problem-solving strategies
- Use set notation and operations
- Represent relationships between sets using Venn diagrams
- Solve problems that involve the application of set theory

Unit 2: Counting Methods and Probability

- Determine the number of permutations and combinations of a given collection of objects
- Use the fundamental counting principle
- Solve problems that involve factorials, permutations and combinations
- Interpret and assess the validity of odds and probability statements
- Solve problems that involve the probability of mutually exclusive and non-mutually exclusive events
- Solve problems that involve the probability of dependent and independent events

Unit 3: Polynomials

- Identify the characteristics of polynomial functions
- Identify intercepts, and the end behavior of polynomial functions
- Use polynomial functions of degree ≤ 3 to model data (e.g. regression)

Unit 4: Rational Expressions and Equations

- Determine equivalent forms of rational expressions
- Simplify rational expressions
- Determine non-permissible values and the domain of a rational function
- Perform operations with rational expressions (add, subtract, multiply and divide)
- Solve problems that involve rational equations

Unit 5: Exponential and Logarithmic Functions

- Demonstrate an understanding of logarithms and the laws of logarithms
- Solve problems that involve exponential equations
- Solve problems modelled with exponential and logarithmic functions
- Solve problems in financial mathematics using logarithms and exponentials

Unit 6: Sinusoidal Functions

- Sketch angles in degree and radian measure
- Graph and analyze sinusoidal functions, including intercepts, amplitude, period, phase shifts, midline value, and maximum and minimum values
- Model data with sinusoidal functions

More information available at:

https://education.alberta.ca/media/563817/09-math30-2-standardsexemp-2015-16_20151001.pdf

TRANSFERABILITY:

This course is listed in the Alberta Transfer Guide (see <http://www.transferalberta.ca>), and is accepted at colleges and universities in Alberta as equivalent to Math 30-2. * Grade 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.**

EVALUATIONS:

- 6 Assignments 18% (3% each)
- 6 Tests 48% (8% each)
- Final Exam (cumulative) 34%

COURSE SCHEDULE/TENTATIVE TIMELINE: This course is divided into 6 units. There will be a test after completion of each unit.

GRADING CRITERIA:

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines	Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100	C+	2.3	67-69
A	4.0	85-89	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

STUDENT RESPONSIBILITIES: Students are required to attend classes. Assignments must be submitted on time. No late assignments will be accepted. Late or missed tests will result in mark zero unless the student provides a valid reason. No calculators, cellphones, notes or textbooks are allowed during the exams. **Cell phones are to be turned off and not used during class.**

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/about/administration/policies/>

**Note: all Academic and Administrative policies are available on the same page.