DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – WINTER 2018

MA0132 A3: Mathematics Grade 12 Equivalent (Principles 30-2) – 5 (6-0-0)
90 Hours for 15 Weeks

INSTRUCTOR:	Thomas Kaip	**PHONE:**	780-539-2963
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OFFICE HOURS: TBA

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

PREREQUISITE(S)/COREQUISITE: 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
- Scientific calculator

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

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: 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 4: 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 5: 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

Unit 6: 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

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:

- Homework   10%
- Unit Tests   30%
- Midterm   25%
- Final Exam (cumulative)   35%

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: Regular attendance and participation (including homework) is required for the successful completion of this course. Assignments must be handed in on time, and tests/exams must be written on the days announced in class. If an emergency prevents a student from writing a test/exam on the scheduled day, the student must contact the instructor immediately to make other arrangements. Otherwise, the student will receive a zero grade for that component of the course.

STATEMENT ON PLAGIARISM AND CHEATING:
Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, 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.