NORTHWESTERN POLYTECHNIC

DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – Fall 2022

MA0132 (A2) – Mathematics Grade 12 Equivalent (Principles 30-2)-5 (6-0-0)
90 hours for 15 Weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Doris LaChance	**PHONE:**	(780) 539-2810 or 2234
OFFICE:	A205 or C202	**E-MAIL:**	dlachance@nwpolytech.ca
OFFICE HOURS:	TBD or by appointment		

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% 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 (TI-30XIIS recommended)
Internet access for MyClass and additional material

DELIVERY MODE:
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:

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
- 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

Unit 3: Probability
- 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 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 modeled with exponential and logarithmic functions
- Solve problems in financial mathematics using logarithms and exponentials

Unit 6: 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 7: Sinusoidal Functions
- Sketch angles in degree and radian measure
- Graph and analyze sinusoidal functions, including intercepts, amplitude, periods, phase shifts, midline value, and maximum and minimum values
- Model data with sinusoidal functions

More information available at: https://www.alberta.ca/assets/documents/edc-math30-2-assessment-standards-exemplars.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	8%
Unit Tests	32%
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

COURSE SCHEDULE/TENTATIVE TIMELINE:

Assignment 1 (Set Theory): Sept. 12   Test 1 (Units 1&2): Sept 21
Assignment 2 (Probability): Sept. 30   Test 2 (Units 3&4): Oct. 19
                                             Midterm: Oct. 25
Assignment 3 (Exponential Functions): Nov. 4 Test 3 (Unit 5): Nov. 16
Assignment 4 (Polynomial Functions): Nov. 28 Test 4 (Units 6&7): Dec. 6
                                             Final Exam: TBD (Dec. 10-20)

STUDENT RESPONSIBILITIES:

In addition to the Student Rights and Responsibilities as set out in the Northwestern Polytechnic website (https://www.nwpolytech.ca/about/administration/policies/fetch.php?ID=69), the following guidelines will maintain an effective learning environment for everyone:

- Attendance: Regular attendance and class participation is expected of all students and is crucial to good performance in the course. Class interruption due to habitual late arrival or leaving early will not be permitted. You may be debarred from the final exam if your absences exceed 15% of class days (10 lecture classes).
- Check D2L as well as NWP email on a regular basis.
- Assignments must be submitted on time.
- Exams must be written on the days announced in class.
- 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.
- No unspecified electronic devices will be permitted during exams.
- Complete daily homework. At least 1 hour of study per day outside of class time is required.
- Behaviors that interfere with learning are not acceptable.
- Take responsibility for your learning.
- Communicate all requests regarding appointments, etc via NWP email.

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 Northwestern Polytechnic Calendar at https://www.nwpolytech.ca/programs/calendar/or the Northwestern Polytechnic Policy on Student Misconduct: Plagiarism and Cheating at https://www.nwpolytech.ca/about/administration/policies/index.html

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