

DEPARTMENT of Science

COURSE OUTLINE – Fall 2024

MA1600 A2, AS1, AS2: Higher Arithmetic – 3 (3-1-0) 60 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: Brian Redmond
OFFICE: J206
OFFICE HOURS: WF 10:00 AM – 11:30 AM
(or by appointment)

PHONE: 780-539-2982
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CALENDAR DESCRIPTION:

Elementary Number Theory, Numeration Systems, Number Systems and Elementary Probability Theory are included in this course.

PREREQUISITE:

Mathematics 30-1 or equivalent or Mathematics 30-2 or equivalent

REQUIRED TEXT/RESOURCE MATERIALS:

- Gary L. Musser, Blake E. Peterson, William F. Burger, Mathematics for Elementary Teachers: A Contemporary Approach, 10th edition, Wiley
- Use of calculators is not permitted on the tests or exams.

DELIVERY MODE(S):

Lectures Tuesdays and Thursdays 10:00 AM – 11:30 AM in J202

Seminars Mondays (AS1) and Fridays (AS2) 11:30 AM – 12:30 PM in J204 (M) and H211 (F)

A successful student will be able to demonstrate an understanding of the following concepts (among others):

- Apply various strategies to solve mathematical problems.
- Recognize and analyze number patterns, including arithmetic and geometric sequences, and utilize corresponding formulas in problem-solving.
- Understand and apply basic concepts of set theory, using Venn diagrams to depict set relationships.
- Perform counting and basic arithmetic operations in non-standard base number systems.
- Test for divisibility and primality, factor composite numbers, and calculate greatest common divisors and least common multiples using various techniques.
- Represent real numbers on a number line, perform standard operations on rational and irrational numbers, and order a set of real numbers.
- Simplify rational number expressions by following the order of operations and the field properties of rational numbers.
- Apply rules for operations with decimals.
- Convert rational numbers to terminating or repeating decimals and vice versa.
- Simplify square roots.
- Solve and simplify linear equations and inequalities.
- Solve problems involving ratios, proportions, and percentages.
- Simplify rational exponential expressions, use scientific notation, and apply absolute value.
- Perform basic probability and expected value calculations.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page <http://www.transferalberta.alberta.ca>.

** 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:

Worksheets	24%
Tests (x3)	3x14%=42%

Final 32%
Attendance: 2% will be given to each student who has more than 75% attendance.

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	95-100	C+	2.3	67-69
A	4.0	85-94	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:

Lecture/Seminar	Date	Topic	Reading
	Mon. Sept. 2	Labour Day – No classes	
L1	Tues. Sept. 3	Introduction to Problem Solving	Chapter 1
L2	Thurs. Sept. 5		
FS1	Fri. Sept. 6	Worksheet 1	
MS1	Mon. Sept. 9		
L3	Tues. Sept. 10	Set Theory	Chapter 2
L4	Thurs. Sept. 12		
FS2	Fri. Sept. 13	Worksheet 2	
MS2	Mon. Sept. 16		
L5	Tues. Sept. 17	Whole Numbers	Chapter 3
L6	Thurs. Sept. 19		

FS3	Fri. Sept. 20	Worksheet 3	
MS3	Mon. Sept. 23		
L7	Tues. Sept. 24	Numeration Systems	2.3 + class notes
L8	Thurs. Sept. 26		
FS4	Fri. Sept. 27	Worksheet 4	
	Mon. Sept. 30	National Day for Truth and Reconciliation – no classes	
L9	Tues. Oct. 1	Whole-Number Algorithms	Chapter 4
L10	Thurs. Oct. 3		
FS5	Fri. Oct. 4	Worksheet 5	
MS4	Mon. Oct. 7		
L11	Tues. Oct. 8	Number Theory	Chapter 5
L12	Thurs. Oct. 10		
FS6	Fri. Oct. 11	Worksheet 6	
	Mon. Oct. 14	Thanksgiving – no classes	
L13	Tues. Oct. 15	Test 1	Chapters 1-4
L14	Thurs. Oct. 17	Fractions	6.1, 6.2
FS7	Fri. Oct. 18	Worksheet 7	
MS5	Mon. Oct. 21		
L15	Tues. Oct. 22	Fractions	6.3
L16	Thurs. Oct. 24	Decimals, Ratio, Proportion, Percent	7.1, 7.2
FS8	Fri. Oct. 25	Worksheet 8	
MS6	Mon. Oct. 28		
L17	Tues. Oct. 29	Decimals, Ratio, Proportion, Percent	7.3, 7.4
L18	Thurs. Oct. 31	Integers	8.1
FS9	Fri. Nov. 1	Worksheet 9	

MS7	Mon. Nov. 4		
L19	Tues. Nov. 5	Integers	8.2
L20	Thurs. Nov. 7	The Rational Numbers	9.1
FS10	Fri. Nov. 8	Worksheet 10	
	Mon. Nov 11	Remembrance Day – no classes	
	Tues. Nov. 12	Fall Break – no classes	
	Thurs. Nov. 14		
	Fri. Nov. 15		
MS8	Mon. Nov. 18	Worksheet 10	
L21	Tues. Nov. 19	Test 2	Chapters 5–8
L22	Thurs. Nov. 21	The Real Numbers	9.2
FS11	Fri. Nov. 22	Worksheet 11	
MS9	Mon. Nov. 25		
L23	Tues. Nov. 26	Probability	11.1, 11.2, 11.3
L24	Thurs. Nov. 28		
FS12	Fri. Nov. 29	Worksheet 12	
MS10	Mon. Dec. 2		
L25	Tues. Dec. 3	Probability	11.4
L26	Thurs. Dec. 5	Review	
FS13	Fri. Dec. 6		
MS11	Mon. Dec. 9		
L27	Tues. Dec. 10	Test 3	Chapters 9, 11

Final exam period: Thursday, December 12 – Thursday, December 19, inclusive.

STUDENT RESPONSIBILITIES:

This is a challenging course. Success requires regular attendance, timely completion of assignments, and at least 10 hours of weekly study outside of class. Collaboration



with classmates is encouraged, but each student must submit their own work and ensure they understand it fully.

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available

at <https://www.nwpolytech.ca/about/administration/policies/index.html>.

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