

DEPARTMENT OF SCIENCE

COURSE OUTLINE – Fall 2023

MA1600 (A2): 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: Dr. Selcuk Aygin

PHONE: (780) 539 2008

OFFICE: J210

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OFFICE HOURS: 13.20 – 14.20 Mondays, or by appointment.

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

PREREQUISITE(S)/COREQUISITE: 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):

Lecture: A2 14.30 – 15.50 M & W (Room J202)

Seminars: AS1 10.00 – 10.50 M (Room J228)

AS2 8.30 – 9.20 F (Room J228)

LEARNING OUTCOMES:

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

- Apply and identify a variety of strategies for solving (mathematical) problems
- Recognize number patterns, including arithmetic and geometric sequences, and work with corresponding formulas in problem-solving applications
- Apply basic concepts and constructions of set-theory and use Venn diagrams to depict set relationships
- Count and perform basic arithmetic operations in non-standard base number systems

- Test for divisibility and primality, factor composite numbers, calculate greatest common divisors and least common multiples using multiple techniques
- Represent a real number on a number line, perform standard operations on real numbers (rational + irrational numbers), and order a set of real numbers
- Reduce rational number expressions to simplest form following rules for the order of operations and the field properties of the rational numbers
- Apply rules for operations with decimals
- Convert a rational number to a (terminating/repeating) decimal and vice versa
- Simplify square roots
- Solve and simplify linear equations and inequalities
- Solve problems involving ratios, proportion and percent
- Simplify rational exponential expressions, use scientific notation and absolute value
- 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:

3 Tests: Each equally weighted for a total of 50% (Worthy of approximately 16.66% each). Tests will take place during Lecture Hours on the dates below.

Test Dates:

A2: Oct 2, Nov 1, Dec 4

12 Seminars: Best 10 marks out of 12, each worth 2% for a total of 20%. This mark will be based on the work submitted during scheduled seminar time.

Final Exam: Worth 30% and will be scheduled by the registrar sometime between December 14 and December 21. It is the student's responsibility to be available to write the final exam at the scheduled time. Writing early is not permitted.

Attendance: A bonus of 2% will be given to each student who has more than 70% 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:

A2	Classes	Tests	
Week 1	Sept 5-8		Chapter 1
Week 2	Sept 11-15		Chapter 1
Week 3	Sept 18-22		Chapter 2
Week 4	Sept 25-29		Chapter 3
Week 5	Oct 2-6	Oct 2 (T1)	Chapter 4
Week 6	Oct 10-13		Chapter 4
Week 7	Oct 16-20		Chapter 5
Week 8	Oct 23-27		Chapter 6
Week 9	Oct 30-Nov 3	Nov 1 (T2)	Chapter 7
Week 10	Nov 6-10		Chapter 8
Break	Nov 13-17		
Week 11	Nov 20-24		Chapter 9
Week 12	Nov 27-Dec 1		Chapter 9
Week 13	Dec 4-8	Dec 4 (T3)	Chapter 11
Week 14	Dec 11-12		Chapter 11
Final	Dec 14-21		

STUDENT RESPONSIBILITIES: Students are responsible for all lecture material, seminars and readings. Students are expected to practice the material by doing problems from the textbook. Tests or seminars cannot be rescheduled. If a test or seminar is missed due to illness or an extreme misfortune the weight will be distributed evenly with the other tests or seminars. A doctor's note and/or an email with supporting documents will be required in all cases. No recording of any kind is allowed in the class, seminar or during consultation with the instructor.

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.