DEPARTMENT OF SCIENCE

COURSE OUTLINE – Winter 2024

MA2600 (A3): Mathematical Reasoning for Teachers – 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:	J 210	**E-MAIL:**	saygin@nwpolytech.ca
OFFICE HOURS:	M 12.00-12.50 or by appointment.		

CALENDAR DESCRIPTION: Reasoning and problem solving in the context of logic, algebra, geometry, and combinatorics.

PREREQUISITE(S)/COREQUISITE: MA1600 or any 1000-level Math course

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: A3 11.30 – 12.50 T R (Room J226)
Seminar: AS1 10.00 – 10.50 F (Room J204)

COURSE OBJECTIVES: This course is designed to provide students with a broader and deeper understanding of the mathematics underlying the elementary school curriculum. An emphasis will be placed on problem-solving and non-calculator-based techniques.

LEARNING OUTCOMES:

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

- the fundamental counting principle,
- tree diagrams,
- factorials,
- permutations and combinations,
- Pascal's triangle to solve counting problems,
- probabilities for simple and complex experiments,
- the expected value of a random variable,
- finding the perimeter, area, and volume of some two and three dimensional figures,
- classifying and measuring angles,
- finding the circumference and area of a circle,
- solving mathematical problems using geometrical ideas such as congruence, similarity, and the Pythagorean theorem.
- circle geometry,
- solving geometric problems using a coordinate system,
- creating, analyzing, and criticizing deductive arguments using symbolic logic, truth tables, and Venn/Euler diagrams.

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.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 worth 16.66% for a total of 50%. Tests will take place during Lecture Hours on the dates below.

> **Test Dates:**
> A3: Feb 8, Mar 12, April 2

11 Seminars: Best 10 marks out of 11, 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 during the finals. 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	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:

A3	Dates	Test	
Week 1	Jan 8-12		Topic 1
Week 2	Jan 15-19		Topic 1
Week 3	Jan 22-26		Chapter 11
Week 4	Jan 29-Feb 2		Chapter 11
Week 5	Feb 5-9	Feb 8 (T1)	Chapter 11
Week 6	Feb 12-16		Chapter 12
Winter Break	Feb 19-23		
Week 7	Feb 26-Mar 1		Chapter 13
Week 8	Mar 4 -8		Chapter 13
Week 9	Mar 11-15	Mar 12 (T2)	Chapter 14
Week 10	Mar 18-22		Chapter 14
Week 11	Mar 25-29		Chapter 14
Week 12	Apr 1-5	Apr 2 (T3)	Chapter 15
Week 13	Apr 8-12		Chapter 15
Week 14	Apr 15		
Final			

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 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 Student Rights and Responsibilities policy which can be found at https://www.nwpolytech.ca/about/administration/policies/index.html.
**Note: all Academic and Administrative policies are available on the same page.