NORTHWESTERN POLYTECHNIC

DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE –Winter 2023

MA0133 (A3): Mathematics Grade 30-3 Equivalent – 5 (0-0-7.5) HS 112.5 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 is a modularized course which covers linear relations, limits to measurements; statistics, probability and odds, properties of geometric figures, transformations, trigonometry of oblique triangles, planning for, and owning a small business. Emphasis is placed on applications related to trades and personal use.

PREREQUISITE(S)/COREQUISITE:

MA0123 or equivalent math placement test score

Note: You may register in MA0133 if you achieved a mark of 60 percent or better in Alberta Math 20-3, or equivalent, within the previous two years.

REQUIRED TEXT/RESOURCE MATERIALS:

Borgen, Katharine. MathWorks 12 Workbook. Vancouver: Pacific Educational Press, 2012.

Non-graphing scientific calculator (TI-30XIIS recommended)

DELIVERY MODE(S):

MA0133 is a modularized math course.

COURSE OBJECTIVES:

Introducing students to:
- linear and non-linear relations in graphs, tables of values, and equations
- trends in data displayed in scatterplots
- the concept of accuracy, precision, uncertainty, and acceptable tolerance
- the similarities and differences between averages and percentiles
- the concept of probability to analyze and interpret problems
- the properties of regular polygons, including pentagons, hexagons, and octagons
- drawing and analyzing two-dimensional shapes that result from a combination of successive transformations
- problems involving transformations
- oblique triangles and how to solve them using sine and cosine law
- ways to improve the financial performance of a business and to check if a business is likely to succeed.

LEARNING OUTCOMES:

As a result of taking this course, students will gain the ability to:
- Identify linear and non-linear graphs, and write equations representing the linear relations
- Identify trends in data displayed in scatterplots, and write equations to express linear trends
- Extrapolate and interpolate data based on trends
- Calculate uncertainty, acceptable tolerance when conditions are given
- State the similarities and differences between averages and percentiles
- Calculate a percentile rank and other variables related to the rank
- Analyze and interpret problems relating with probability
- Calculate the probability of an event occurring based on a data set or based on the odds for or against
- Describe and show properties of triangles, using side lengths and angle measures
- Describe and show properties of quadrilaterals , using side lengths, angle measures, diagonal lengths, and angles of intersection
- Identify uses of different geometric shapes
- Identify and draw transformations performed on two-dimensional shapes
- Draw and analyze two-dimensional shapes that result from a combination of successive transformations
- Solve problems involving transformations
- Solve an unknown angle and/or side of oblique triangles using Sine Law or Cosine Law
- State ways to improve the financial performance of a business
- Identify whether a business is likely to succeed or not

TRANSFERABILITY:

This course is listed in the Alberta Transfer Guide. It is accepted at colleges and universities in Alberta as equivalent to Math 30-3.

** 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 section tests (best 3 out of 4)	30 %
Midterm	25 %
Final Exam	45 %

**Note: Even though 50% is a passing mark, a mark of at least 65% is recommended for success in future courses.

GRADING CRITERIA:

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:

See table on last page.

STUDENT RESPONSIBILITIES:

In addition to the Student Rights and Responsibilities as set out in the college website, the following guidelines will maintain an effective learning environment for everyone:

- Regular attendance is expected of all students in all mathematics courses. Your success in math is directly linked to your attendance. Attendance will be taken daily.
- Students are expected to be punctual. Arrive on time for classes and remain for the duration of scheduled classes.
- Refrain from disruptive talking or socializing during class time.
- Be respectful of others regarding food or beverages in the classroom. Clean up your eating area and dispose of garbage.
- Recycle paper, bottles, and cans in the appropriate containers.
- Children are not permitted in the classrooms.
- Students are expected to notify the instructor of any extenuating circumstances.
- Students are expected to turn off cell phones during class time or in labs. No unspecified electronic devices will be allowed in exams.

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.

How to use the book:

1. Read the title of each chapter, table of contents page, and title of each section. You will observe a progressive growth of operations/concepts.

2. Read and thoroughly understand the concepts and terminology of a section.

3. Understand and do each example very carefully using the terminology.
   If difficulties arise, meet with your instructor.

4. Match each question in an exercise with the corresponding examples before the exercise. *If difficulties arise, return in your module and rework the examples.*

5. Attempt the exercise questions and check the answers before moving on to the next section.
   If difficulties arise, meet with your instructor.

6. Review the terminology of the module(s) before taking any test/exam.

Tentative Test Schedule

Test #	% towards final grade	Topics	Recommended Test Date	Date written	Mark
1	10%	Chap. 1: Linear Relations & Chap. 2: Limits to Measurements	January 23		
2	10%	Chap. 3: Statistics & Chap. 4: Probability and Odds	February 13		
Midterm Exam	25%	All of the Above	February 15		
3	10%	Chap. 5: Properties of Geometric Figures & Chap. 6: Transformations	March 16		
4	10%	Chap. 7: Trigonometry & Chap. 8: Owning a Small Business	April 10		
FINAL Exam	45%	All of the Above	TBA (April. 14-24) 3 hour exam		

***All tests must be completed by April 10th.**

***Midterm must be completed by March 1st.**