DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2025
MA1130 (A3): ELEMENTARY CALCULUS I– 3 (3-2-0) 75 Hours over 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: Tom McLeister **PHONE:** (780) 539-2961

OFFICE: J212 **EMAIL:** tmcleister@nwpolytech.ca

OFFICE HOURS: T 13:00 – 14:00 WR 10:00 -11:00

CALENDAR DESCRIPTION:

The course will include a review of analytic geometry; functions, limits, continuity; differentiation of elementary functions; applications to maxima, minima and rates; introduction to integration; Fundamental Theorem; numerical integration; and areas and other applications of the definite integral to areas.

PREREQUISITE: Mathematics 30-1 or equivalent

REQUIRED TEXT/RESOURCE MATERIALS:

Open (free) textbook at www.lyryx.com. Calculus: Early Transcendentals by David Guichard.

DELIVERY MODE(S):

Lecture:	A3	M 13:00-14:20	F 11:30-12:50	D308
Seminars:	AS1	T 14:30-16:20		J201
	AS2	F 14:30-16:20		J201

LEARNING OUTCOMES:

At the end of this course, students should be able to…

- State the definition of a function and describe the various ways a function can be represented;
- Find the domain and range of a function;
- Identify and sketch standard algebraic, exponential, logarithmic, trigonometric and piecewise defined functions;
- Compose functions;
- Calculate limits of functions using the limit laws;
- Identify points or intervals where a function is continuous/discontinuous;
- Calculate derivatives of functions using the limit definition and the differentiation rules;
- Estimate the value of a function at a point using the tangent line (linear) approximation or differentials;
- Calculate derivatives implicitly and solve related rates problems;
- Sketch the graph of a function and indicate the extreme values, points of inflection, asymptotes, and intervals of concavity;
- Apply calculus to solve optimization problems;
- Calculate definite integrals using Riemann sums and the Fundamental Theorem of Calculus;
- Calculate definite and indefinite integrals using substitution;
- Use the definite integral to find the area between curves.

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:

Worksheets:	15%
Midterm Exams:	2 × 22.5% (Tentatively Fri Feb14, Fri Mar 28)
Final Exam:	40% (Cumulative and scheduled during exam period)

Note: There will be no make-up midterms. If a midterm is missed for a valid reason and proper documentation is provided, then the weight of the midterm will be transferred to another component.

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:

Week 1	Jan. 6-10	January 6 – First class
Week 2	Jan. 13-19	January 15—last day to add/drop
Week 3	Jan. 20-24	
Week 4	Jan. 27 -31	
Week 5	Feb 3-7	
Week 6	Feb. 10-14	Friday February 14 Midterm Exam I (Tentative)

Week 7	Feb. 17-21	Family Day and Winter Break—No Classes
Week 8	Feb. 24 – 28	
Week 9	Mar. 3-7	
Week 10	Mar. 10—14	
Week 11	Mar. 17—21	
Week 12	Mar. 24-28	Friday March 28 Midterm Exam II (Tentative)
Week 11	Mar. 31-Apr 4	Monday March 31—last day to withdraw
Week 12	Apr. 7-11	Friday April 11—last day of classes.

Final Exam Period Monday April 14—Wednesday April 23

STUDENT RESPONSIBILITIES:

Attend all lectures and seminars. If a lecture or seminar is missed, it is the student's responsibility to catch up on the material and obtain the missing lecture notes. Students are expected to practice the material by doing problems from the textbook and/or exercises posted on myClass. If a midterm is missed due to illness the weight will be put on the next midterm or the final. If the final is missed due to illness it will be deferred (see calendar for information). A doctor's note and a phone message or email will be required in both cases.

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.

CALCULATORS: Use of calculators is not permitted on exams.

FINAL EXAM: The final exam will be written during the exam period, between April 14 and April 23 inclusive, including Saturdays and evenings. It is the student's responsibility to be available to write the exam at the scheduled time. Writing early is not permitted.