NORTHWESTERN POLYTECHNIC

DEPARTMENT SCIENCE

COURSE OUTLINE – Winter 2026

MA1150 (A3): Elementary Calculus II – 3 (3-1.5-0) 67.5 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:	**Abdel Bensouilah**	**PHONE:**	(780) 539-2052
OFFICE:	J210	**E-MAIL:**	ABensouilah@NWPolytech.ca
OFFICE HOURS:	11:00 AM to 12:00 PM on Tuesdays and Thursdays, or by appointment.		

CALENDAR DESCRIPTION: The course will cover techniques of integration; inverse functions; L'Hôpital's rule; improper integrals; approximate integration; applications of integrals

PREREQUISITE(S) : MA1130, MA1140 or MA1000

COREQUISITE(S) :

REQUIRED MATERIALS:

- Open (free) textbook at www.lyryx.com: Calculus: Early Transcendentals by David Guichard. (Click here to go to download page!)
- Use of calculators is not permitted on the tests or exams

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DELIVERY MODE(S):

Lecture:	A3	T R	1:00 PM –2:20 PM	B201
Seminar:	AS1	F	11:30 PM – 12:50 PM	E305

LEARNING OUTCOMES:

At the end of this course, students should be able to:
evaluate integrals by integration by parts, inverse substitution, trigonometric substitution, and partial fractions; compute limits using L'Hôpital's rule; evaluate improper integrals; approximate integrals using Midpoint, Trapezoid, and Simpson's rules; identify invertible functions and differentiate their inverses; evaluate derivatives and integrals involving logarithmic, exponential, inverse trigonometric, hyperbolic and inverse hyperbolic functions; apply integration to solve problems involving volume, surface area, arc length, work, probability, moments, centres of mass, and centroids.

TRANSFERABILITY:

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

** For courses with alpha (letter) grading, a 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:

Quizzes & Assignments 20% (held on a weekly basis)

Quizzes will be announced one lecture prior to the quiz.

Midterms 2 × 20% (Tentatively Week 6: Thursday Feb 12, Week 11: Thursday Mar 19)

Final Exam 40% (Cumulative, during exam period Apr 16 - Apr 23)

GRADING CRITERIA:

Please note that most institutions will not accept your course for transfer credit **IF** your grade is **less than C-**.

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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:

Weeks	Topics
Week 1 (Jan 6, 8)	Review: derivatives, integration by substitution and Riemann sums (sections 4.3, 4.5, 6.1 and 7.1)
Week 2 (Jan 13, 15)	Applications of derivatives: L'Hôpital's rule (section 5.5)
Week 3 (Jan 20, 22)	Inverse functions (sections 2.4, 2.6, and 4.8)
Week 4 (Jan 27, 29)	Techniques of integration: integration by parts (section 7.4)
Week 5 (Feb 3, 5)	Techniques of integration: powers of trigonometric functions (section 7.2)
Week 6 (Feb 10, 12)	Techniques of integration: trigonometric substitutions (section 7.3)

Week 7 (Feb 17, 19)	Winter Break
Week 8 (Feb 24, 26)	Techniques of integration: rational functions (section 7.5)
Week 9 (Mar 3, 5)	Techniques of integration: numerical integration (section 7.6)
Week 10 (Mar 10, 12)	Techniques of integration: numerical integration (section 7.6)
Week 11 (Mar 17, 19)	Techniques of integration: improper integrals (section 7.7)
Week 12 (Mar 24, 26)	Applications of integration: distance, velocity and acceleration, area between curves, volume (sections 8.1, 8.2 and 8.3)
Week 13 (Mar 31, Apr 2)	Applications of integration: work, arc length and surface area (sections 8.5, 8.7 and 8.8)
Week 14 (Apr 7, 9)	Review for final exam
Week 15	Final exam (between Apr 16 and Apr 23)

STUDENT RESPONSIBILITIES: Students are responsible for all lecture material, labs and readings. Students are expected to practice the material by doing problems from the textbook. Assignments are not accepted if handed in late. If a quiz/midterm is missed for a valid reason and proper documentation provided, a make-up quiz/midterm will be scheduled. 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.

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.

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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.