

DEPARTMENT SCIENCE COURSE OUTLINE – Winter 2026

MA2150 (A3): Intermediate Calculus II – 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: Therar Kadri **PHONE:** (780) 539-2878
OFFICE: J209 **E-MAIL:** TKadri@NWPolytech.ca
OFFICE HOURS: M&W 10:00 AM -11:30 AM

CALENDAR DESCRIPTION:

The course includes first order and second order linear differential equations with constant coefficients; curves, tangent vectors, arc length, integration in two and three dimensions, polar, cylindrical and spherical coordinates, line and surface integrals; Green's, divergence and Stoke's theorems.

PREREQUISITE(S)/COREQUISITE: Prerequisites: MA2140.

REQUIRED TEXT/RESOURCE MATERIALS:

Calculus: Early Transcendentals, 9" Edition by James Stewart

DELIVERY MODE(S):

Lecture:	A3	M	11:30 – 12:50	A305
		F	10:00 – 11:20	A305
Seminar:	AS1	F	11:30 – 12:20	A305

LEARNING OUTCOMES:

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

- Solve separable and first order differential equation
- Solve homogeneous and non-homogeneous linear second order differential equation.
- Calculate double and triple integrals using Cartesian, cylindrical and spherical coordinates.
- Apply multiple integrals to evaluate centers of mass and moments of inertia.
- Apply multiple integrals to evaluate volumes and surface area.
- Apply line integrals to evaluate centers of mass, moments of inertia, and work.
- Understand the physical significance of divergence and curl.
- Represent surfaces in parametric form and evaluate surface integrals.
- Understand the significance of advanced theorems such as Green's theorem, the divergence and Stokes' theorems

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:

Quizzes & Assignments 20% (held at end of each topic)

Midterms 2 × 20% (Tentatively Week 5: Fri Feb 6, Week 10: Fri Mar 20)

Final Exam 40% (Cumulative and scheduled during exam period, April 16-23 inclusive)

GRADING CRITERIA: (The following criteria may be changed to suite the particular course/instructor)

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:

Weeks	Chapter	Sections from the Textbook
Week 1 (Jan 5,9)	Chapter 9: First order differential equations (9 th Ed.)	9.1, 9.3, 9.5
Week 2 (Jan 12,16)	Chapter 17: Second order differential equations (8 th Ed.)	17.1, 17.2,
Week 3 (Jan 19,23)		17.3, 17.4
Week 4 (Jan 26, 30)	Chapter 15: Multiple Integrals (9 th Ed.)	15.1, 15.2
Week 5 (Feb 2,6)		15.3
Week 6 (Feb 9,13)		15.4, 15.5,
Winter Break (Feb 16-20)		
Week 7 (Feb 23, 27)		15.6, 15.7
Week 8 (Mar 2, 6)	Chapter 16: Vector Calculus (9 th Ed.)	15.8, 16.1
Week 9 (Mar 9,13)		16.2, 16.3
Week 10 (Mar 16,20)		16.4,
Week 11 (Mar 23,27)		16.5, 16.6
Week 12 (Mar 30, Apr 3)		16.7, 16.8
Week 13 (Apr 6,10)		16.9
Week 14 (Apr 13)		Revision

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 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.