NORTHWESTERN POLYTECHNIC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – Fall 2025

MA 2301 (A2): Technical Mathematics II – 3 (3-1-0) 60 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:	James Iverson	**PHONE:**	780-539-2850
OFFICE:	C407	**E-MAIL:**	jiverson@nwpolytech.ca
OFFICE HOURS:	1:00-1:50 Monday, Tuesday, and Thursday or by appointment.		

CALENDAR DESCRIPTION:

This course will provide students an opportunity to build essential math skills that are fundamental to engineering technologies. Its aim is to review and extend topics in linear algebra, functions, exponentials, logarithms, and trigonometry, and introduce students to the topics of differential and integral calculus and statistics.

PREREQUISITE(S):

MA 1401

REQUIRED MATERIALS:

- Basic Technical Mathematics with Calculus, SI Version, 12th edition, by Allyn J. Washington and Richard S. Evans, Pearson Canada, 2023.
- Scientific calculator

DELIVERY MODE(S):

Lectures Mondays and Wednesdays 8:30-9:50 AM in A209
Seminars Fridays 8:30 – 9:20 AM in A209

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LEARNING OUTCOMES:

By the end of this course, students will be able to:

- Analyze and solve problems involving linear systems of equations, utilizing methods such as substitution, elimination, matrices, determinants, and Cramer's Rule, and applying them to real-world applications.
- Analyze and solve problems related to functions and their graphs, including linear functions, logarithmic and exponential functions, and gain proficiency in graphing techniques.
- Demonstrate advanced trigonometry skills, including angle measurements, trigonometric ratios, radian measure, trigonometric identities, and their applications through trigonometric graphs.
- Evaluate derivatives of functions using concepts like limits, algebraic and transcendental functions, and apply these derivatives to various engineering and mathematical applications. Additionally, apply integral calculus to compute areas, volumes, and accumulated quantities, with a focus on engineering applications.
- Apply statistical processes to solve engineering technology problems, covering topics such as data collection, frequency distributions, graphical data presentation, measures of central tendency and variation, probability theory, and regression analysis for real-world scenarios.

TRANSFERABILITY:

Nontransferable, there are no transfer agreements in place.

EVALUATIONS:

Assignments:	30%
Midterms:	40%
Final Exam:	30%

GRADING CRITERIA:

Grades for this course will be assigned as a percentage. The minimum passing grade is 65%.

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COURSE SCHEDULE/TENTATIVE TIMELINE:

Week	Notes	Topic
Sep 1-5	Classes begin Sep 3	Review Ch. 3,5
Sep 8-12		Review Ch. 13,8
Sep 15-19		Chapter 10
Sep 22-26		Chapter 20
Sep 29-Oct 3	No Class Sep 30	Chapter 22
Oct 6-10	Midterm 1	Chapter 23
Oct 13-17	No Class Oct 13	Chapter 23
Oct 20-24		Chapter 24
Oct 27-31		Chapter 27
Nov 3-7		Chapter 25
Nov 10-14	Fall Break – No Class	
Nov 17-21	Midterm 2	Chapter 25
Nov 24-28		Chapter 26
Dec 1-5		Chapter 28
Dec 8-12	Last Class Dec 11	Review

STUDENT RESPONSIBILITIES:

The following guidelines will maintain an effective learning environment for everyone. We ask the cooperation of all students in the following areas of the classroom environment.

1. Take responsibility for your learning.
2. Attendance: Regular attendance and class participation is expected of all students and is crucial to good performance in the course.
3. Exams must be written on the days announced in class.
4. If an emergency prevents attendance on an exam day, students must contact me before the end of the exam (as soon as possible) via phone or email, students may be asked to provide documentation to justify their absence.
5. No unspecified electronic devices will be permitted during exams. This includes phones, smartwatches etc.

6. Complete daily homework. At least 1.5 hours of study per day outside of class time is required to stay caught up.
7. Behaviors that interfere with learning are not acceptable.
8. Communicate all requests regarding appointments, etc. via email.

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 https://www.nwpolytech.ca/about/polytechnic-leadership/policies-directory.

**Note: all Academic and Administrative policies are available on the same page.