



DEPARTMENT OF SCIENCE
COURSE OUTLINE – FALL 2020
MA 1200 A2 LINEAR ALGEBRA I – 3(3-0-1) UT
60 HOURS FOR 15 WEEKS

INSTRUCTOR: Tom McLeister **PHONE:** (780) 539-2961
.
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OFFICE HOURS: M, T, W, F 10:00-11:00

FALL 2020 DELIVERY: Remote Delivery. This course is delivered remotely. There are no face-to-face or onsite requirements. Students must have a computer with a webcam and reliable internet connection. Technological support is available through helpdesk@gprc.ab.ca.

PREREQUISITE: Mathematics 30-1 or equivalent

REQUIRED TEXT/RESOURCE MATERIALS:

W. Keith Nicholson, Linear Algebra with Applications (free pdf available at: www.lyryx.com)

CALENDAR DESCRIPTION:

Systems of linear equations, vectors in n-space, vector equations of lines and planes, matrix algebra, inverses and invertibility, introduction to linear transformations, subspaces of n-space, determinants, introduction to eigenvalues and eigenvectors, the dot product and orthogonality, applications in a variety of fields.

DELIVERY MODE(S):

Lecture:	A2	MW 16:00 – 17:20	REMOTE
Seminars:	AS1	F 08:30 - 09:20	REMOTE
	AS2	T 13:00 – 13:50	REMOTE

COURSE OBJECTIVES: The aim of this course is to present the fundamental ideas and techniques of linear algebra alongside its many applications to the natural and computing sciences.

LEARNING OUTCOMES: A successful student will be able to adequately demonstrate an understanding of the concepts stated below (among others):

Chapter 1: Systems of Linear Equations – Solutions and Elementary Operations, Gaussian Elimination, Homogeneous Equations

Chapter 2: Matrix Algebra – Matrix Additions, Scalar Multiplication and Transposition, Equations, Matrices and Transformations, Matrix Multiplication, Inverses, Elementary Matrices, Linear Transformations

Chapter 3: Determinants and Diagonalization – The Cofactor Expansion, Determinants and Matrix Inverses, Diagonalization and Eigenvalues

Chapter 4: Vector Geometry – Vectors and Lines, Projections and Planes, Dot and Cross Product

Chapter 5, 6: Vector Space – Basic Properties, Subspaces and Spanning, Independence and Dimension, Orthogonality, Rank, Similarity and Diagonalization

TRANSFERABILITY: UA, UC*, UL*, AU*, AF, CU*, CUC, GMU, KUC

***Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities.** Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page <http://www.transferalberta.ca> or, if you do not want to navigate through few links, at <http://alis.alberta.ca/ps/tsp/ta/tbi/onlineSearch.html?SearchMode=S&step=2>

** 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

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

EVALUATIONS:

Assignments: 15%

Quizzes: 15%

Midterms: 2 × 20% (Tentatively W Oct 21, W Nov 25)

Final Exam: 30% (Cumulative and scheduled during exam period, TBA)

Note: There will be no make-up quizzes or exams. If a quiz/test is missed for a valid reason and proper documentation is provided, then the weight of the quiz/test will be transferred to another component. Late assignments will not be accepted.

FINAL EXAM: The final exam will be written during the exam period, between December 11 and December 19 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.

CALCULATORS: Use of calculators is not permitted on the quizzes or exams.

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.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at www.gprc.ab.ca/about/administration/policies/**

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

COURSE SCHEDULE/TENTATIVE TIMELINE: Chapters 1-6