GPRC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2018

MA1200 A2/B2: Linear Algebra I – 3 (3-1-0) UT

60 Hours for 15 Weeks

INSTRUCTOR:	Dallas Sawtell	**PHONE:**	780-539-2989
OFFICE:	C412	**E-MAIL:**	dsawtell@GPRC.ab.ca

OFFICE HOURS: TBA

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, introductions to eigenvalues and eigenvectors, the dot product and orthogonality, applications in a variety of fields.
PREREQUISITE: Mathematics 30-1 or equivalent

REQUIRED TEXT/RESOURCE MATERIALS: W.Keith Nicholson:Linear Algebra with Appilications (an Open Text). Free pdf version at: www.lyryx.com

DELIVERY MODE(S): Lecture: M W 10:00-11:20   J226
                     Seminar:**A2** F 10:00-11:00 J227   **B2** F 8:30-9:30 J226

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, Guassian Elimination, Homogeneous Equations
Chapter 2: Matrix Algebra – Matrix Addtions, Scalar Multiplication and Transposition, Equations, Matirces 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 – Baisc Properties, Subspaces and Spanning, Independence and Dimension, Orthogonality, Rank, Similarity and Diagonalization

TRANSFERABILITY: See www.gprc.ab.ca and consult the Alberta Transfer Guide for more information. http://www.transferalberta.ca or 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**

EVALUATIONS: Worksheets during the seminars   10%

Quizzes every Wednesday starting Sept.19   15%

Midterm   Wednesday, Oct 24   25%

Final Exam Dec.10-19 inclusive, including evenings and weekends   50%

No calculators or formula sheets are allowed on quizzes, midterm or the final exam

COURSE SCHEDULE/TENTATIVE TIMELINE: Chapters 1-6

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

STUDENT RESPONSIBILITIES: Students are responsible for all lecture material, seminars and readings. Students are expected to practice the material by doing problems from the textbook. No late worksheets will be accepted. Quizzes cannot be made up if missed.   If the midterm is missed due to illness the weight will be put on the final (ie. the final will be worth 75%). 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 all cases.
Cellphone use is not permitted in the classroom. This includes texting. Please turn off and put away your cellphone during class. You may be asked to leave the classroom if using a cellphone.
No recording of any kind is allowed in the class, seminar or during consultation with the instructor.

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 http://www.gprc.ab.ca/about/administration/policies/

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