

SAMPLE COURSE OUTLINE

Course Code, Number, and Title:

MATH 2362: Linear Algebra

Course Format:

[Course format may vary by instructor. The typical course format would be:]

Lecture 4.0 h + Seminar 0.0 h + Lab. 0.0 h

Credits: 3.0

Transfer Credit: For information, visit bctransferguide.ca

Course Description, Prerequisites, Corequisites:

Linear algebra is a source of many important ideas and techniques with broad applications in mathematics, science, and engineering. Students explore some of the main concepts and techniques in linear algebra as they learn about vectors, matrices, linear equations, and their applications. In addition, the course has a theoretical focus and students are expected to complete various types of proofs. The topics include systems of linear equations, Gaussian elimination, operations on matrices, determinants, Euclidean and abstract vector spaces, linear independence of vectors, vector subspaces, the concepts of basis and dimension, linear transformations, change of basis, eigenvalues and eigenvectors, diagonalization, and orthogonal diagonalization.

Students will receive credit for only one of MATH 2362 or 1252.

Prerequisite(s): A minimum "C-" grade in one of the following: MATH 1271, 1273, 1274, or 1275; or a minimum "A" grade in MATH 1171, 1173, or 1253 and concurrent registration in one of the following: MATH 1271, 1273, 1274, or 1275. Prerequisites are valid for only three years.

Learning Outcomes:

Upon successful completion of this course, students will be able to...

- Row reduce matrices and apply row reduction to a large number of different types of problems
- Read, interpret, and use the vocabulary, symbols and basic definitions used in linear algebra, including vectors, matrices, vector spaces, subspaces, linear independence, span, basis, dimension, linear transformation, dot product, eigenvalue and eigenvector.
- Solve systems of linear equations; find determinants; find the row and column space of a matrix; find the rank and nullity of a matrix; determine bases and compute dimensions of vector spaces; orthogonalize a given basis; diagonalize matrices, if possible; evaluate linear transformations; find the kernel and the range of linear transformations.
- Identify and apply the theorems about the characteristics of vector spaces and linear transformations.
- Apply properties and theorems about vector spaces to specific mathematical structures that satisfy the vector space axioms.
- Compose clear and accurate proofs using the concepts of this course.

Instructor(s): TBA
Office: TBA
Office Hours: TBA

Phone: (604) 323-XXXX
Email: TBA

Textbook and Course Materials:

[Textbook selection may vary by instructor. An example of texts and course materials for this course might be:]

For textbook information, visit https://mycampusstore.langara.bc.ca/buy_course/listing.asp?selTerm=3|8

Note: This course may use an electronic (online) instructional resource that is located outside of Canada for mandatory graded class work. You may be required to enter personal information, such as your name and email address, to log in to this resource. This means that your personal information could be stored on servers located outside of Canada and may be accessed by U.S. authorities, subject to federal laws. Where possible, you may log in with an email pseudonym as long as you provide the pseudonym to me so I can identify you when reviewing your class work.

Assessments and Weighting:

Final Exam 40%

Other Assessments 60%

[An example of other assessments might be:]

Quizzes 5%

Online Assignments 5%

Midterm Examinations 50%

Grading System:

Specific grading schemes will be detailed in each course section outline.

Grades	F	D	C-	C	C+	B-	B	B+	A-	A	A+
% Range	0-47	48-52	53-57	58-62	63-67	68-72	73-76	77-79	80-84	85-95	≥ 96

Topics Covered:

[Topics covered may vary by instructor. An example of topics covered might be:]

- Systems of Linear Equations and Matrices
- Determinants
- Euclidean Vector Spaces
- General Vector Spaces
- Eigenvalues and Eigenvectors
- Inner Product Spaces (only concerned with dot product)
- Diagonalization and Quadratic Forms
- General Linear Transformations

As a student at Langara, you are responsible for familiarizing yourself and complying with the following policies:

College Policies:

[E1003 - Student Code of Conduct](#)

[F1004 - Code of Academic Conduct](#)

[E2008 - Academic Standing - Academic Probation and Academic Suspension](#)

[E2006 - Appeal of Final Grade](#)

[F1002 - Concerns about Instruction](#)

[E2011 - Withdrawal from Courses](#)

Departmental/Course Policies:

Information unavailable, please consult Department for details.

SAMPLE