University of Regina

SYLLABUS

LINEAR ALGEBRA 1

MATH 122 – FALL 2024

Territorial acknowledgement: The University of Regina is situated on the territories of the nêhiyawak, Anihšināpēk, Dakota, Lakota, and Nakoda, and the homeland of the Métis/Michif Nation. The Regina campus is on Treaty 4 lands, and Saskatoon classes are on Treaty 6 lands.

Instructor:	Professor Alice Lacaze-Masmonteil
Course webpage:	`https://urcourses.uregina.ca/course/view.php?id=33460`
Classes:	Monday, Tuesday, Thursday 4:30pm-5:20pm in CL 125
Laboratory:	Friday 12:30pm-1:20pm in CL 125
Email:	alk004@uottawa.ca
Office hours:	Mondays and Thursdays 3:00pm to 4:00pm in CW 307.14 or by appointment (on zoom or in person)

Course-related material, such as homework assignments or topics cover per course, will be posted on URCourses. Important information might also be sent by emails.

Textbook:
Linear Algebra with Applications, Lyryx Version 2021-A, by W.K. Nicholson. Available for free at `https://lyryx.com/linear-algebra-applications/`.

Catalog Description:
A course intended to introduce students to elementary linear algebra, particularly at a computational and applied level. Topics include matrices and systems of equations, inversion, determinants, vectors, inner products, eigenvectors and eigenvalues.

Purpose of Class:
This class is designed for students in virtually all disciplines, including mathematics, statistics, actuarial science, computer science, physics, engineering, math education, economics, etc. who need a practical introduction to the techniques of linear algebra with an emphasis on computations.

Prerequisites:
Precalculus 30, or Math B30 and C30, or MATH 102

Course Outline (tentative):

Chapter 1: Systems of Linear Equation

(1) elementary row operations;
(2) solving systems of equation;
(3) echelon forms;
(4) homogeneous equations;

Chapter 2: Matrix Algebra

(1) linear transformation;
(2) matrix operations;
(3) inverses;

Chapter 3: Determinants and Diagonalization

(1) determinants;
(2) eigenvalues and eigenvectors;

Chapter 4: Vector Geometry

(1) vectors;

(2) dot product and cross product;
(3) projections;
(4) lines and planes in $\mathbb{R}^3$.

Laboratories:
Laboratories are an opportunity to practice the content of the class. Practice problems will be posted on URCourse a week ahead of time. Students are encouraged to attempt the problems ahead of time. The lab instructor will then demonstrate how to solve some example problems. Although attendance is not mandatory, it is strongly encouraged.

Exams:
There will be five quizzes, two midterm exams, and one final *comprehensive* exam. The midterms will take place Friday, October 11 and Friday, November 15. Both, midterms and quizzes, will take place during the laboratory time. The final exam will be held during the exam period on December 14. A detailed description of the material covered by each exam will be provided on URCourse in due time.

Calculators:
Use of calculators is NOT allowed unless explicitly stated in the corresponding exam.

Grading Policy:
The final grade will be based on *your best four of five* quizzes, two midterm exams, and the *comprehensive* final exam. It will be computed according to the following distribution:

- **Midterm I**: 15% of your grade;
- **Midterm II**: 15% of your grade;
- **Quizzes**: 20% of your grade;
- **Final exam**: 50% of your grade.

Exam policy: If a student cannot write one of the two midterms, they must contact the instructor. For those who write both midterms and do better on their final exam than their worst midterm, the final exam percent will be counted as the grade on that midterm.

A final grade of less than 50% is a failing grade for undergraduate courses.

Important Dates:
Below is a summary of the important dates for the Fall 2024 term.

September 4	First day of the term
September 20	**Quiz I (12:55pm-1:20pm in CL 125)**
October 4	**Quiz II (12:55pm-1:20pm in CL 125)**
October 11	**Midterm 1 (12:30pm-1:20pm in CL 125)**
October 14-20	Reading week (no classes)
October 25	**Quiz III (12:55pm-1:20pm in CL 125)**
November 1	**Quiz IV (12:55pm-1:20pm in CL 125)**
November 15	**Midterm 2 (12:30pm-1:20pm in CL 125)**
November 15	Last day to drop course
November 29	**Quiz V (12:55pm-1:20pm in CL 125)**
December 6	Last day of the term
December 14	Final Exam

Attendance Policy:
Attendance is STRONGLY recommended, but attendance will not be taken.

Materials Copyright:
All materials generated for this class are protected by Copyright laws. Distributing copies or sale of any of these materials is strictly prohibited.

Academic Fraud:
Academic fraud is an act by a student that may result in a false evaluation. It is not tolerated by the University. Examples of academic fraud are: plagiarism, cheating of any kind or submit a work for which you are not the author, in whole or part. Any person found guilty of academic fraud will be subject to severe sanctions. Please consult the webpage `https://academic-integrity.uregina.ca` which contains regulations and tool to help you avoid plagiarism.

Student Success Centre:
The Student Success Centre is a one-stop shop for academic support located in RC 230. Whether you are an experienced student or just starting out, you will find some great resources to help you succeed.

With the Student Success Centre you can:

- connect with an advisor to develop individualized approaches and strategies to effectively handle the demands of your semester and get better grades;
- take advantage of free math tutoring;
- take part in study methods workshops (note taking, time management, exam preparation, stress management, etc.).

For more information: `https://www.uregina.ca/student-success-centre/index.html`.

Health and Wellness center:
Your wellness is an integral part of your success. If you don't feel well, it can be hard to focus on your studies. Dedicated professionals who care about you are always ready to provide advice and support. Depending on your needs, many activities and services exist to accompany you during your academic journey.

If you want to connect with a counsellor, you can book an appointment online, by email at student.wellness@uregina.ca, or over the phone at 306-337-2200.

For more informations: `https://www.uregina.ca/wellness-centre/index.html`.

Academic Accommodations:
We try to make sure all students with disabilities have equal access to learning and research environments, the physical campus and University-related programs and activities. UR Accomodated works with other campus services to create an accessible campus learning environment, where students with disabilities have an equal opportunity to flourish. We offer a wide range of services and resources, provided with expertise, professionalism and confidentiality.

Services include:

- help for students with disabilities in making the transition;
- permanent and temporary accommodation measures;
- adaptive exams.

You must register with Student Accessibility: `https://uregina-accommodate.symplicity.com/public_accommodation/`.

Students are encouraged to register with Student Accessibility early in order to ensure that registration is complete prior to the beginning of classes.

If you need to book an appointment or speak with an Accessibility Officer, please email accessibility@uregina.ca. Please include your full name, Student ID, and phone number in all email communication.