

SYLLABUS FOR MTH 309, FALL 2025 INTRODUCTION TO LINEAR ALGEBRA

Instructor: Dr. Yiqiang Li, Professor of Mathematics

Office: 212 Mathematics Building

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Office hours:

- T: 3-4pm
- R: 3-4pm
- or by appointment

Lecture Time and Place: TR 5PM–6:20 PM at Talbert 107.

Recitation: Instructor: Alia Spaker

F 9-9:50am, Obrian 109.

F 10-10:50am, Park 250.

Text: (1) Matrix theory and linear algebra, Peter Selinger, based on the original text by Lyryx Learning and Ken Kuttler

Available at <https://www.mathstat.dal.ca/~selinger/linear-algebra/>

(2) Optional: linear algebra and its applications, Lay, Lay and McDonald

Course Description: Linear equations, Gaussian elimination, matrices, determinants, vector spaces, linear mappings, inner products, eigenvalues, eigenvectors.

Prerequisite: MTH 142 or MTH 154.

Resources:

- UB Math help center: <https://www.buffalo.edu/cas/math/ug/help-center.html>
- Dr. B. Badzioch's notes: available here
- Recitation instructor's office hours: 9-11am Wednesday, office 136 (Math building)

Policy on generative AI: No calculator or computer or any other electronic devices are allowed to use in the exam.

Midterms: All exams are closed-book exams. No calculator or computer or any other electronic devices are allowed to use in the exam.

- Exam 1 (week 5, TBA)
- Exam 2 (week 10, TBA)
- Exam 3 (week 15, TBA)

Final exam: No final exam.

Late homework and makeup exam policy: Late homework and makeup exam will be accepted or granted only due to serious illness, or other unexpected events that are beyond your control. In which case, an official document, such as a Doctor's note or an excuse from the Chair or DGS, is needed.

Grading: The final grade of the course is assigned, based on the following three factors.

- Homework: 30% (3% each);
- Three midterms: 70% (20% each for the first two, 30% for the third);

The tentative curve for the final grade is set as follows.

- 90% of the total points guarantees an A;
- 86% guarantees a A-;
- 82% guarantees a B+;
- 78% guarantees a B;
- 74% guarantees a B-;
- 70% guarantees a C+;
- 66% guarantees a C;
- 62 % guarantees a C-;
- 58 % guarantees a D+;
- 54% guarantees a D.

Students with disabilities: If you have a diagnosed disability (physical, learning or psychological) which will make it difficult for you to carry out the course work as outlined, or requires accommodations such as recruiting note takers, readers, or extended time on exams and/or assignment, please advise me during the first two weeks of the course so we may review possible arrangements for reasonable accommodations.

The UB Academic Integrity Policy: it applies to all work in this course, including signing the attendance sheet, if any. All work on homework and tests must be solely your own work. For more information about the policy at UB, please see the following website:

<https://academicintegrity.buffalo.edu>

Homework: Homework due on Thursday the following week before lecture begins.

	tentative schedule	
Week	Homework Assignment	Extra credit/Due date
Week 1 08/25-08/30	1.1.2, 1.1.3, 1.2.2, 1.3.4, 1.3.5, 1.3.6 1.4.1, 1.4.2, 1.4.3, 1.4.7, 1.4.12, 1.4.13 1.4.15(3), 1.4.16(e), 1.4.20	09/04
Week 2 08/31-09/06	1.9.1 (c), 1.11.2, plus the last exercise in Lecture note 3 2.1.2, 2.2.2, 2.3.2, 2.4.2	
Week 3 09/07-09/13	4.1.3, 4.1.4, 4.2.1 (a), 4.2.2(a), 4.2.3 4.3.1 (a), 4.3.2, 4.4.1(a), (b), (d), 4.4.2, 4.4.4 1.6.1(b), 1.6.3	
Week 4 09/14-09/20		
Week 5 09/21-09/27		
Week 6 09/28-10/04		
Week 7 10/05-10/11		
Week 8 10/12-10/18		
Week 9 10/19-10/25		
Week 10 10/26-11/01		
Week 11 11/02-11/08		
Week 12 11/09-11/15		
Week 13 11/16-11/22		
Week 14 11/23-11/29		
Week 15 11/30-12/06		