

MATH 106 - Applied Linear Algebra I

Fall 2018

Instructor: Zack Cramer
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Office Hours: Wednesday 9:00-10:00
Thursday 10:30-12:00

Syllabus: Vectors space geometry, including lines, planes, projections, and cross products. Subspaces of \mathbb{R}^n . Systems of linear equations. Matrix algebra. Linear transformations, matrix mappings, the rank-nullity theorem. Determinants. Eigenvalues and diagonalization. Applications.

Prerequisites: MATH 103 or 4U Calculus and Vectors.

Textbook: The following textbooks are on course reserve at the Davis Centre library, and the first is available for purchase at the UW bookstore. It is not required that you purchase either text.

Primary reference: *Introduction to Linear Algebra for Science and Engineering, 2nd ed.*
Daniel Norman and Dan Wolczuk

Secondary reference: *Introduction to Linear Algebra, 5th ed.*
Gilbert Strang

Course Website: All relevant information can be found on our Learn webpage (<https://learn.uwaterloo.ca>).

Grading: Grades will be computed according the the following scheme.

Assignments: 15%	Midterm Exam 1: 20%	Final Exam 40%
Tutorial Quizzes: 5%	Midterm Exam 2: 20%	

Assignments: There will be a total of 10+1 weekly assignments, which will be submitted electronically via Crowdmark (<https://crowdmark.com>). Assignments are due at **12:00 noon** on the dates below. Late assignments will NOT be accepted. The lowest assignment score will be dropped.

Assignment	Due date	Assignment	Due date
Assignment 0	September 11	Assignment 5	October 19
Assignment 1	September 14	Assignment 6	October 26
Assignment 2	September 21	Assignment 7	November 2
Assignment 3	September 28	Assignment 8	November 9
Assignment 4	October 5	Assignment 9	November 23
		Assignment 10	November 30

Tutorials: Tutorials will take place on Wednesdays from 1:30-2:20 in PHY 235, and will begin on September 12th.

In tutorials, the TA will present problems designed to supplement the content from class. You will be given an opportunity to attempt these problems yourselves. You are encouraged to work with those around you and ask the TA for help if needed. The last 10-15 minutes of each tutorial will consist of a 1-2 question quiz that will be completed individually.

Midterm Exam 1: Written in the tutorial on Wednesday, October 17.

Midterm Exam 2: Written in the tutorial on Wednesday, November 14.

Final Exam: There will be a registrar-scheduled final exam for the course. More info TBA.

Missed examination policy. For any missed examination, you must have a valid reason (for instance, illness) and appropriate supporting documentation (i.e. University of Waterloo Verification of Illness Form). A copy of these forms must be given to your instructor as soon as possible. Absence for the either midterm exam will then result in the weight being shifted to the final exam. There will be no deferred (make-up) midterms. Absence for the final exam may result in a grade of INC at the discretion of your instructor. To be considered for an INC, you must have passing grades on the midterm exams and a strong average over all assignments and quizzes. (See <http://ugradcalendar.uwaterloo.ca/page/Regulations-Accommodations>)

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.

[Check www.uwaterloo.ca/academicintegrity/ for more information.]

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean.

For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>. For typical penalties check Guidelines for the Assessment of Penalties, <http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm>.

Appeals: A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals, <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>.

Note for students with disabilities: AccessAbility Services, located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AccessAbility Services at the beginning of each academic term.