Basics

For issues about mathematics and homework, use the Piazza forum (the link is on the sidebar) or attend office hours. Office hours with the professor take place immediately following lectures, outside the classroom and then in MATX 1207. Office hours with Kyna take place on Thursdays at 3:00 in GEOG 109.

Email the professor only *for personal or administrative issues*.

Questions on invigilated assessments (the two tests and the final exam) fall into two categories.

☆	These questions assess core techniques. ☆ questions account for two-thirds of the marks on each invigilated assessment. *The majority of those questions **will** be taken directly from WeBWorK assignments.* Approximately two-thirds of class time will be spent on the theoretical underpinnings and direct practice of ☆ questions. If you want to*pass* the course, aim for success on ☆ questions.
★	These questions extend core techniques to new contexts. *It is normal to look at these questions and initially not know what to do.* ★ questions account for one-third of the marks on each invigilated assessment. Approximately one-third of class time will be spent on direct practice of ★ questions. In most classes, the end of the lecture will be spent introducing and starting work on a ★ question. Each week you will also be given a ★ question as a Practice Problem, along with a grading scheme. With the exception of the last week, every due date for a WeBWorK assignment is also the due date to submit a scan of the self-graded Practice Problem. This will be assessed for completion only, and is to encourage you to take the Practice Problems seriously. There is no advantage to looking at the grading scheme in advance. *Some Practice Problems **may** reappear on invigilated assessments.*

> If you want to *get an A* in the course, aim for success on ☆*and* ★ questions.

Attendance in this course is mandatory, and necessary for success. Do not attend lectures passively. Instead, prepare for each lecture by skimming the relevant section(s) of the textbook. Take every opportunity during a lecture to do the presented work yourself. *If you have a question, ask.*

In addition to attending lectures, schedule at least one hour per day, six days of the week, for uninterrupted, distraction-free *deliberate practice*. Deliberate practice consists of working on WeBWorK problems and Practice Problems (not reading notes or watching videos) and reflecting on your work. What "unlocked" the problem for you? How would you describe the main moves in your solution to a classmate? If the numbers or parameters of the problem were different, how would your solution change?

You can succeed in this course! But it requires substantial effort sustained over time.

Calendar and resources

Calendar
Textbook
Piazza
Math Learning Centre

The content covered week by week can be found below:

This course uses the UBC edition of Interactive Linear Algebra. This is a free online textbook adapted by UBC professors for UBC students; there are no physical copies available but the PDF file is easily printable.

The link to Piazza can be found on the sidebar.

Piazza is a discussion board where you can ask questions or talk with your classmates, professors, and TAs. If you have general questions about the course (*e.g.* where to hand in assignments) or technical questions (*e.g.* how to format a WeBWorK answer), post them on Piazza instead of emailing the professor, as other students almost certainly have the same question.

Feel free to ask questions about WeBWorK assignments and Practice Problems. However, you must try the question first, and in your post, describe the work you

have done so far. It is a good idea to include a screenshot of your work.

If you respond to a question, you must not give away the answer. Bonus engagement marks may be given for especially insightful questions and responses.

The Math Learning Centre (MLC) is a drop-in study space, open to all students, where you can get help from Math graduate students.

Grades and assessments

Your final grade will be calculated using the chart below.

Dates	Topics	Textbook sections	Comments	Notes
September 4-September 6	Systems of linear equations, vectors	2.1, 1.1		File Week1.pdf could not be included in the ePub document. Please see separate zip file for access.
September 9-September 13	Vector equations and spans, row reduction	1.2, 2.2		File Week2.pdf could not be included in the ePub document. Please see separate zip

				file for access.
September 16-September 20	Parametric form, matrix equations, solution sets	2.3, 2.4, 3.1		File Week3.pdf could not be included in the ePub document. Please see separate zip file for access.
September 23-September 27	Linear independence, subspaces	3.2, 3.3		File Week4.pdf could not be included in the ePub document. Please see separate zip file for access.
October 1-October 4	Bases, dimension, coordinate systems	3.4, 3.5	September 30 is a statutory holiday	File Week5.pdf could not be included in the ePub document. Please see separate zip file for access.
October 7-October 11	The Rank Theorem	3.6	**Test 1** takes place in your first class this week	**File Week6.pdf could not be included in the ePub document. Please see separate zip file for access.**
October 15-October 18	Transformations	4.1, 4.2, 4.3	October 14 is a statutory	

			holiday	
October 21-October 25	Matrix multiplication, inverses, the Invertible Matrix Theorem	4.4, 4.5, 4.6		
October 28-November 1	Determinants	5.1, 5.2		
November 4-November 8	Eigenvalues and eigenvectors	6.1	**Test 2** takes place in your first class this week	
November 14, November 15	The characteristic polynomial	6.2	The Midterm Break is November 11-13	
November 18-November 22	Similarity, diagonalization, complex eigenvalues	6.3, 6.4, 6.5		
November 25-November 29	Dot products and orthogonality, orthogonal complements	7.1, 7.2		
December 2-December 6	Orthogonal projection	7.3		

Assessment	Percent
WeBWorK assignments	5%
Attendance and Practice Problems	5%
Tests	30%
Final exam	60%

WeBWorK assignments are posted approximately weekly. WeBWorK assignments make up **5%**of your final grade.

WeBWorK assignments are used to assess core techniques. Calculation-based questions on WeBWorK assignments are exclusively at the ☆ level.☆ questions account for two-thirds of the marks on each invigilated assessment. *The majority of those questions **will** be taken directly from WeBWorK assignments.*

Your lowest WeBWorK assignment grade will be ignored. This is intended to account for technical difficulties, illness, and other personal situations.

You can access WeBWorK by clicking on "Assignments" on the sidebar.

Attendance and self-graded Practice Problems are worth **5%** of your final grade.

Attendance: Attendance is mandatory, and may be checked. If you cannot attend a particular class, email the instructor in advance.

Self-graded Practice Problems: Every week, you will be given a ★ question as a Practice Problem, along with a grading scheme. With the exception of the last week, every due date for a WeBWorK assignment is also the due date to submit a scan of the self-graded Practice Problem. This will be assessed for completion only, and is to encourage you to take the Practice Problems seriously. There is no advantage to looking at the grading scheme in advance.

Each instance of missed attendance, or of late, unsubmitted or incorrectly graded work, will result in a deduction of **1%** of your final grade (to a maximum of 5%). You may, however, skip one Practice Problem without penalty. This is intended to account for technical difficulties, illness, and other personal situations. *Some Practice Problems **may** reappear on invigilated assessments.*

Bonus marks may be awarded for extraordinary contributions.

There are two tests. Each test is worth **15%** of your final grade. Each test consists of ten ☆ questions worth a total of 20 marks, and one ★ question worth 10 marks.

The final exam is worth **60%** of your final grade. The exam consists of twenty ☆ questions worth a total of 40 marks, and two ★ questions worth a total of 20 marks.

If you find a marking error on returned work, you can request a regrade within 48 hours of the assignment being returned. All regrade requests must be submitted via email. Your work may be regraded in part or in full. Your mark may be adjusted downward as well as upward. Note that WeBWorK marks answers wrong if they are entered with incorrect syntax. This is not a grading error.

Frequently Asked Questions

This section will be updated throughout the term with common questions and problems.

- Will lectures be recorded?
- On written assignments and exams, is it necessary to simplify answers?

- Will final grades be scaled?
- Are calculators allowed?
- Details

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Office Hours

You are free to attend the office hour that best fits your schedule

Large Class Instructor Office Hours

Instructor	Section	Time	Location
Anthony Wachs	1A1	Wednesdays 11am - 12pm	MATH229B
	1A2	Fridays 10am - 11am	MATH229B
Usman Muhammad	1A3	Mondays 10:00am-11:00am	MATH234
	1A4	Wednesdays 10:00am-11:00am	
Mark Mac Lean	1AR	Check Section Page	MATX 1209 and online

Small Class Instructor Office Hours

Instructor	Section	Time	Location
Natalia Accomazzo Scotti	AR1 A32 AR4 A35	Thu. Dec. 8th: 12-13 ESB 2012 Thu. Dec. 15th: 10-13 ESB 2012 Might add zoom office hours if there's need, write me an email if interested.	ESB 2012
Emanuele Bodon	A12 A23 A24 A48	2022-12-01 (Thursday) MATH 102 from 12pm to 1pm. 2022-12-02 (Friday) CHEM C124 from 3pm to 4pm. 2022-12-07 (Wednesday) LASR 104 from 9am to 10am. 2022-12-08 (Thursday) LSK 460 from 10am to 11am. 2022-12-08 (Thursday) MATH 102 from 11am to 12pm. 2022-12-09 (Friday) CHEM C124 from 2pm to 3pm. 2022-12-14 (Wednesday) LASR 104 from 9am to 10am. 2022-12-15 (Thursday) MATH 102 from 11am to 12pm.	See previous column.
Marina Garrote-López	AR2 A21 A22 A46	Wednesdays 2:00 - 4:00 pm	LSK 300C
Yunhui He	A13 A34 A15 A45	2022-12-02 Friday (Zoom): 10:00am -12:00pm: 2022-12-05 Monday (Zoom): 3pm-5pm	Zoom

Instructor	Section	Time	Location
		2022-12-12 Monday (Zoom): 3pm-5pm 2022-12-13 Tuesday (Zoom): 3pm-5pm	
Severin Schraven	A41 A42 A16 A38	Wednesdays 19:00-21:00	Zoom
Kelly Paton	AR3	Thursday December 8, 12-1PM (zoom) Wednesday December 14, 12-2PM (zoom) ^ if you have a schedule conflict on Wed, send me an email with a preferred time: kmpaton at math dot ubc dot ca	
Gabriel Currier	A31 A33 A36 A47	Mondays 1-2pm Wednesdays 1-2pm	LSK 300C
W. Sebastian Gant	AR7 A43 A44 A37	Wednesday 4:00-5:00 Friday 10:00-11:00	LSK 300C
Junjie Zhu	A11 A14 AR5 AR6	Fri. Dec 2nd 3:00 - 5:00 Tue. Dec 6th 1:00 - 3:00 Thu. Dec 15th 2:30 - 4:30	LSK 300B MATX 1102 MATX 1118

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