Math 3121b/Math 9050b -- Advanced Linear Algebra
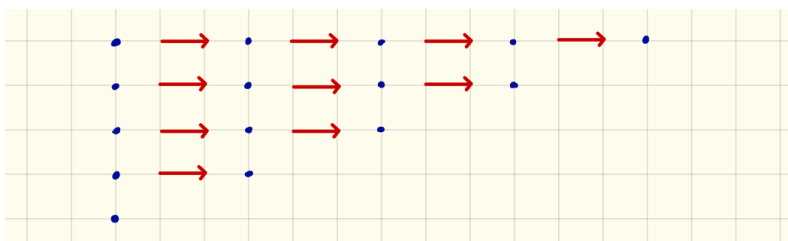
Instructor	Graham Denham
Office hours	Monday, Friday 10:30-11:20am, or by appointment
Class times	MWF 9:30-10:30am
Class location	**MC 108**
Textbook	*Linear Algebra,* Friedberg Insel and Spence, 5th edition, available at the bookstore
Prerequisites	Mathematics 2120A/B, or permission of the Department.
Midterm exam date	TBA
Final exam	Scheduled by the registrar.
Evaluation	40% Final exam; 35% midterm; 25% assignments

Synopsis

A week-by-week record of what's going on will appear here. Note that this is a course where class attendance and participation are generally expected, but if you miss a day, you can get some idea of what took place here.

Syllabus

From the academic calendar: "A continuation of the material of Mathematics 2120A/B including properties of complex numbers and the principal axis theorem; singular value decomposition; linear groups; similarity; Jordan canonical form; Cayley-Hamilton theorem; bilinear forms; Sylvester's theorem." Less formally, Math 2120 sets the stage for linear algebra by introducing vector spaces, bases, and linear transformations. Math 3121 continues with a range of fun topics that all continue from that foundation. Some of these are of great practical use in applications, like the singular value decomposition. Others, like the study of bilinear forms, play a basic role in geometry and physics.

Assignments

Linear algebra is a skill to develop and practice is essential. Homework assignments, approximately biweekly, will be the most important part of the course. You are encouraged to take them seriously and budget at least three hours per week for homework. Assignments will be submitted through [Gradescope](#).

Some of the assignment problems will be routine, and some will take some thought. Collaborating with other people can add a lot to the experience of doing math, and I encourage you to do so. Just make sure to write your own solutions, your own way, and to acknowledge any debts you may have. Ask me if in doubt, since presenting the work of others as your own constitutes a serious academic offence. There will be at most six assignments, approximately biweekly. If you submit all of them, I will drop your lowest homework score.

Exams

There will be one midterm which we will schedule at the start of week 2.

Math 9050b

The MSc version of this course includes slightly different homework problems, and an additional self-directed written project, to be chosen at the start of term. In this case, the evaluation is weighted as 30% final exam; 25% midterm; 25% assignments; 20% project. The project is due on the first Monday after the last lecture.

Further information

Academic dishonesty: Scholastic offences are taken seriously and students are directed to read the [official policy](#).

Accessibility Statement: Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 for any specific question regarding an accommodation.

Support Services: Learning-skills counsellors at the [Student Development Centre](#) are ready to help you improve your learning skills. Students who are in emotional/mental distress should refer to [Mental Health@Western](#) for a complete list of options about how to obtain help. Additional student-run support services are offered by the [USC](#). The website for Registrarial Services is http://www.registrar.uwo.ca.

Eligibility: You are responsible for ensuring that you have successfully completed all course prerequisites and that you have not taken an antirequisite course. Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Common Course Policies and information:

[please click here](#).

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