

Overview: Linear equations over a field. Introduction to vector spaces. Linear maps and their matrix representations. Determinants. Eigenvectors and eigenvalues. Diagonalizable operators. Cayley-Hamilton theorem. Bilinear and quadratic forms. Inner product spaces, orthogonal diagonalization of symmetric matrices. Canonical forms.

Prerequisites: Math 235 - Algebra 1 (which, in turn, had Math 133 - Linear Algebra and Geometry, as a prerequisite.)

Lectures: Mon, Wed, Fri 9:30–10:30 in Maass 112

Instructor: Bogdan Nica

Office Hours: Wed, Fri 10:30–12:00 (Burnside 1248)

Email: bogdan.nica@mcgill.ca (use subject "Math 236: ...")

Tutorial: Thu 12:30–2:30 in Burnside 1B36

Assistant: Michael Wolman

Office Hours: Mon, Tue 12:00–1:00 (Burnside 1020)

Email: michael.wolman@mail.mcgill.ca (use subject "Math 236: ...")

Textbooks: None. Suggested additional reading: Sergei Treil - *Linear Algebra Done Wrong*, freely available at https://www.math.brown.edu/~treil/papers/LADW/LADW_2017-09-04.pdf.

Grade: 10% Homework, 25% Midterm, 65% Final.

Homework: Five assignments, approximately one every two weeks. The assignments are submitted via myCourses; submissions by email or on paper will not be accepted. You are encouraged to use LaTeX, but handwritten assignments are fine as well—in which case, please ensure that you write neatly and you produce a clear scan of your assignment. Late assignments are not accepted.

Exams: Midterm (1.5 hours) – date and location TBA. Comprehensive final exam (3 hours) – see exam schedule for date and location.

Advice: Attend classes. Showing up is just a part of the process. Come prepared, take good notes, and stay focused. Keep your cell phone away. Ask questions and answer questions. Enjoy!

Attend tutorials. Take good notes, stay focused, keep your cell phone away. The purpose of the tutorial is to see more examples, at a slower pace than during the lecture. Ask questions!

Start working on the assignments well in advance of the due date. Work on them on your own, as much as you can. If you get stuck on a problem, you may discuss it with other students, or you can drop by office hours to get help. Looking up solutions on the internet is discouraged.

University Policy: McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures. For more information, see <http://www.mcgill.ca/students/srr/honest>.

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

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