

MATH 236 – ALGEBRA 2

WINTER 2018

Course description: 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.

Prerequisite: 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 Burnside 1B45

Instructor: Bogdan Nica

Office Hours: Mon, Fri 10:30–12 in Burnside 1131

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Tutorial: TBA

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Texts: Sergei Treil - *Linear Algebra Done Wrong*, and Eyal Goren's course notes for Math 251. Both are freely available at <http://www.math.brown.edu/~treil/papers/LADW>, respectively <http://www.math.mcgill.ca/goren/AlgebraII07-08/CourseNotesMath251.pdf>.

Additional reference: Sheldon Axler - *Linear Algebra Done Right*, third edition (Springer 2015). Available at <https://link.springer.com/book/10.1007%2F978-3-319-11080-6> with McGill credentials.

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

Homework: Five assignments, approximately one every two weeks. Late assignments are not accepted. Explain carefully and write neatly. You may collaborate with other students in the class, but your solutions must be written up individually.

Exams: Closed book, no calculators. Midterm - date and location TBA. Comprehensive final exam - 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. Ask questions and answer questions. Enjoy.

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.

Key dates: Start on January 8th. End on April 16th. Time out: March 5th to 9th.

Deadlines: January 23rd - Add/Drop; January 30th - Withdraw with refund; March 30th - Withdraw without refund.