

Syllabus - MATH 1210
Techniques of Classical and Linear Algebra
Winter 2016

Instructors:

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- A03: Instructor** Michelle Davidson
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Textbook: *Notes for Course MATH 1210: Techniques of Classical and Linear Algebra* by Donald Trim (2012)

Course Outline:

1. **Mathematical Induction:** In this unit proof by mathematical induction, and use of sigma notation to represent sums symbolically will be discussed.(Chapter 1)
2. **Complex Numbers and Polynomial Equations:** This unit covers complex numbers in Cartesian, polar, and exponential forms, addition, subtraction, multiplication, division, and roots of complex numbers (Chapter 2), properties of polynomial equations, and use the rational root theorem, Descartes' rules of signs, and a bounds theorem for finding roots of polynomial equations (Chapter 3).
3. **Linear Algebra:** This unit covers a variety of topics in linear algebra, such as matrices (addition, subtraction,multiplication)(Chapter 4), vectors and their application to equations for lines and planes in three-space (Chapter 5), solving systems of linear equations by Gaussian and Gauss-Jordan elimination (Chapter 6), determinants, Cramer's Rule, linearly independent and dependent vectors (Chapter 7), inverses of matrices, using inverse matrices to solve linear system (Chapter 8), linear transformation, matrices for linear transformation, eigenvalues and eigenvectors (Chapter 9).

Evaluation of Student Performance:

Assignments	15 %	See schedule
Midterm Test	35%	Scheduled for March 3 rd , 5:30 - 7:00 locations for midterm will be announced in class
Final Examination	50%	(3 hours) - to be scheduled by registrar

Assignment Schedule:

There will be 5 assignments during the term, with tentative due dates of:

January 20th, February 3rd, February 22nd, March 9th, and March 30th.

Assignments will be posted on the website one week or more before their due date.

Website:

<http://home.cc.umanitoba.ca/~davidsom/2016.1/MATH1210/>

Notes:

- ◇ The Voluntary Withdrawal Deadline is March 18th.
- ◇ If you miss the midterm, you will be assigned a grade of 'zero' unless reasons and acceptable supporting evidence are provided.
- ◇ Assignments will be due during class. Under no circumstances will late assignments be accepted.

Faculty of Science Statement on Academic Dishonesty

The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

Note: cell phones, pagers, PDAs, MP3 units or electronic translators are explicitly listed as unauthorized materials, and must not be present during tests or examinations.

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline ByLaw, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline ByLaw may be accessed at:

http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html

Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science webpage:

<http://umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html>

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.