

Department of Mathematics
MATH 1210 Techniques of Classical and Linear Algebra **Sept.-Dec. 2011**

LECTURES/INSTRUCTORS:

A01: Monday, Wednesday and Friday, 9:30 - 10:20 a.m., EITC E3 270
Dr. G. Krause (424 Machray Hall, 474-6920, gkrause@cc.umanitoba.ca)

A02: Monday, Wednesday and Friday, 1:30 - 2:20 p.m., ST. PAUL'S COLLEGE 305
Dr. A. Prymak (423 Machray Hall, 480-1246, prymak@cc.umanitoba.ca)

A03: Monday, Wednesday and Friday, 1:30 - 2:20 p.m., EITC E2 155
Dr. M. Despic (452 Machray Hall, 474-9191, despic@cc.umanitoba.ca)

First day of lectures: September 9, last day of lectures: December 7.

First day of labs: September 15, last day of labs: December 7.

No lectures/labs (holidays): October 10, November 11.

WEBPAGE: <http://server.math.umanitoba.ca/~prymak/1210/>

(Rooms for the midterm tests, worksheets for labs, and other important information/announcements will be posted here)

TESTS: There will be two midterm tests, of 60-minute duration each, administered in this course. The tests will be on October 5th and November 9th at 5:30pm (subject to change), rooms for these tests will be announced in class and on the webpage.

EXAMINATION: A two-hour final examination will be scheduled, during the December examination period, by the Student Records Office.

AIDS: Use of notes, books, calculators or other computing devices is NOT permitted during the midterm tests and the final examination.

EVALUATION OF STUDENT PERFORMANCE:

Midterm Tests	25 % each
Final Examination	50 %

TUTORIAL (LAB) SESSIONS:

Worksheets for tutorial sessions will be available on the website about a week before the tutorial. You are expected to solve the worksheet problems **before** the lab. The teaching assistants will help you with the difficulties you had with the worksheet problems or any other problems related to the course. Tutorials begin on September 15th. You must be registered in one of the following lab sections:

Lecture sections A01, A02:

- B01 11:30 am -12:20 pm Monday in MACHRAY HALL 315
- B02 11:30 am -12:20 pm Wednesday in MACHRAY HALL 419
- B03 11:30 am -12:20 pm Friday in BULLER 527
- B04 11:30 am -12:20 pm Thursday in BULLER 527
- B05 11:30 am -12:20 pm Tuesday in ARMES 205

Lecture section A03:

- B06 11:30 am -12:20 pm Monday in EITC E2 160
- B07 11:30 am -12:20 pm Wednesday in EITC E2 160
- B08 11:30 am -12:20 pm Friday in EITC E2 160

TEXTBOOK:

Notes for Course MATH 1210: Techniques of Classical and Linear Algebra by D. Trim, 2008.

COURSE OUTLINE: With reference to the text, the following topics will be covered:

- Unit 1 - Mathematical Induction and Sigma Notation (all sections in Chapters 1.1 and 1.2)
- Unit 2 - Solving Equations (all sections in Chapters 2.1 and 2.2): complex numbers (cartesian, polar, and exponential forms), roots of polynomial equations, rational roots, bounds on roots, Descartes' rules of signs.
- Two- and three-dimensional vector geometry (not covered by text): vectors and their algebra and properties, co-ordinates, length, distance, dot product, orthogonality, equations of lines and planes, intersections.
- Unit 3 - Linear Algebra (all sections in Chapters 3.1 to 3.5, except section 3.5.5): matrices and their algebra and properties, gaussian elimination for solving systems of linear equations, row-echelon form, homogeneous and non-homogeneous systems; determinants, Cramer's rule; linear dependence and independence; inverse matrices and use for solving systems of equations, comparison of methods; linear transformations; use of matrices for linear transformations; eigenvalues and eigenvectors in general and for symmetric matrices.

ADDITIONAL NOTES

1. Voluntary withdrawal deadline is November 16.
2. If you miss a midterm test, you will be assigned a mark of zero unless reasons and acceptable supporting evidence are provided to your instructor.
3. In the case of a missed midterm test with a valid reason, the other midterm test and the final exam will be prorated.

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 By - Law, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline By - Law may be accessed at:
http://umanitoba.ca/admin/governance/governing_documents/students/868.htm

Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science web - page:
http://umanitoba.ca/faculties/science/resources/Discipline__Penalties_Table_Jul09.pdf

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.