Mathematics 1350H – Linear algebra I: matrix algebra

(Formerly Mathematics 135H)

Trent University, Fall 2009

Instructor

Stefan Bilaniuk (pronounced Стефан Біланюк)
office: GCS 337
hours: Monday, Wednesday, Thursday, and Friday 13:00-13:50
... or by appointment, or just drop by!
phone: 705 748-1011 x7474
home: 705 742-7862 [Do *not* call between 10 p.m. and 8 a.m. unless it's an emergency.]
e-mail: `sbilaniuk@trentu.ca` *web:* `http://www.trentu.ca/mathematics/sb/`

Department of Mathematics

office: GCS 342
hours: weekdays 09:00-12:30
phone: 705 748-1011 x7531
e-mail: `math@trentu.ca`

Prerequisite

Any Grade 12U mathematics course with at least 60%, or equivalent.

Text

Linear Algebra: A Modern Introduction (Second Edition), by David Poole
Thompson Brooks/Cole, 2006, ISBN 0-534-99845-3

Meetings

Lectures: Monday 11:00-11:50 in OCA 203, Wednesday 15:00-15:50 in ~~ECC 201~~ FPLH 117, and Friday 12:00-12:50 in FPLH 117.

Tutorials: Wednesday 16:00-16:50 in ECC 208, Thursday 10:00-10:50 in ECC 208, and Thursday 11:00-11:50 in ECC 208.

Marking Scheme

There will be at least nine weekly quizzes, five or six fortnightly assignments, a test, and a final examination. Quizzes will normally be written weekly in the Friday lectures and last between ten and twenty minutes apiece. The assignments will usually be handed out and collected every two weeks in the Friday lectures. The test will last fifty minutes and will probably be written during the lecture period on Wednesday, 4 November. The final examination will last three hours and will be written during the examination period in December. These will weigh as follows in the final mark:

Best 8 quizzes (4% each)	32%
Best 4 assignments (5% each)	20%
Test	15%
Final Examination	33%

Students who miss the test or more than one quiz for reasons beyond their control should contact the instructor as soon as possible to arrange to write a make-up. Assignments will not normally be accepted after the due date; students unable to hand in the assignments in time for reasons beyond their control should contact the instructor as soon as possible. Note that there is no attendance requirement *per se*, but the consequences of missing classes are ultimately your responsibility to deal with.

This scheme may be modified for individual students in *exceptional* circumstances, such as a lengthy absence due to illness. Any such modification will require the agreement of both the student and the instructor.

Please note that a deadline given in the printed version of the *Academic Calendar* is incorrect: *students actually have until 13 November, 2009, to drop Fall term half-courses without academic penalty.*

Content

MATH 1350H is an introductory course on linear algebra, with an emphasis on the geometrical and computational aspects of the subject. We will cover the core material from Chapters 1–4 of the text, namely:

1. Vectors and operations on vectors, lines, and planes
2. Systems of linear equations
3. Matrices and operations on matrices
4. Bases, subspaces, and dimension
5. Linear transformations
6. Eigenvalues and determinants

Additional material, including applications not given in the text, may be covered on assignments and in class. We will not attempt to cover all of the applications that the text describes.

Honour

The obligatory statement concerning **academic integrity** reads as follows:

Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from a 0 grade on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University's Academic Integrity Policy. You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trent's Academic Integrity website to learn more – `www.trentu.ca/academicintegrity` .

For clarity, the following guidelines will apply in MATH 1350H:

You are permitted and encouraged to study together and to work together on the assignments, consult any books or other sources you wish, and ask anyone willing (especially the instructor!) for hints, suggestions, and help. However, **you must write up all work submitted for credit entirely by yourself, giving due credit to all relevant sources of help and information. No aid may be given or received on the quizzes, test, and final exam**, except with the intructor's permission.

Help!

Subject to the conditions mentioned above, you can get help from a number of different sources, especially from each other and from the instructor. Other possibilities include:

- The student-staffed Mathematics Drop-In Centre, which will start operating in the second week of the term. (Monday, Tuesday, and Wednesday 13:00-15:00, Thursday 14:00-15:00, and Friday 13:00-14:00, all in GCS 338.)
- The mathematics instructor at the Academic Skills Centre, who should be especially useful if you have gaps in (or have simply forgotten) your high school mathematics. You may book appointments with the Academic Skills Centre by telephone at 705 748-1720 or by e-mail at `acdskills@trentu.ca`.
- Private tutoring by upper-year students. Ask the instructor for suggestions!

In some circumstances you may also be eligible for special help or accommodation. The obligatory statement concerning **access to instruction** reads as follows:

It is Trent University's intent to create an inclusive learning environment. If a student has a disability and/or health consideration and feels that he/she may need accommodations to succeed in this course, the student should contact the Disability Services Office (Bata Library Suite 109, 705 748-1281, `disabilityservices@trentu.ca`*) as soon as possible.*

Aids

You may use whatever calculators you wish. Symbolic computation software such as `Maple` or `Mathematica` may also come in handy when doing some of the assignments or to check your answers when studying. On the test and final exam, but *not* the quizzes, you may also bring **one** of the following:

- an 8.5" × 11" aid sheet, with whatever you want on written on both sides of it; or
- a copy of the pamphlet *Formula for Success* published by Academic Skills, with whatever annotations you like in it.

Note that "personal response systems" such as clickers will not be used in MATH 1350H.

MATH 1350H Web Page (at `http://www.trentu.ca/mathematics/sb/1350H/`)

The MATH 1350H web page includes up-to-date information about the course and links to a selection of material, including tests and final exams, from previous years. This year's work will be put up there as it is assigned, as will some other items of interest. Consult the web pages if you missed a handout in class or lost it after receiving it. Note that MATH 1350H will make only minimal use of myLearningSystem (a.k.a. WebCT); the main use will be to link to the MATH 1350H home page.

Inspiration

No doubt but magic may do much in this;
For he that reads but mathematic rules
Shall find conclusions that avail to work
Wonders that pass the common sense of men.

Robert Greene (from *Friar Bacon and Friar Bungay*)