

MA2073 Syllabus

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... or just stop by at any time.

MA 2073 – C01, C Term 2013
Matrices & Linear Algebra II
Text: “Linear Algebra” (4th ed.)
by S.H. Friedberg, A.J. Insel & L.E. Spence
Meetings: 3-3:50 MTRF, SH106

The goal of this course is to develop a mature understanding of real and complex vector spaces, linear transformations and some uses of these ideas. The student is assumed to have a basic familiarity with matrices and vector spaces, with a firm ability to row-reduce matrices and apply this technique to a variety of problems. In this course, we will mainly focus on the structure of a linear transformation from a finite-dimensional real vector space to itself. Topics will include eigenvalues, eigenvectors, generalized eigenvectors, diagonalization and the Jordan canonical form.

Linear algebra is an essential part of mathematics and an indispensable tool in many areas of science and engineering. We will illustrate this fact by touching on a few of the many applications of linear algebra throughout the course.

TERM SCHEDULE

Here is a rough outline of what I expect us to cover in the 28 class meetings:

Jan. 10 to Jan. 14	<i>Review & Fields</i>	Chap. 1, Sec. 2.1–2.5, Appendices A-D
Jan. 15 to Jan. 17	<i>Linear Transformations</i>	Chapter 2
Jan. 18 to Jan. 25	<i>Matrix Theory & Determinants</i>	Chapters 3 & 4
Jan. 28 to Feb. 4	<i>Eigenvalues and Diagonalization</i>	Chapter 5
Feb. 5 to Feb. 12	<i>Jordan Canonical Form</i>	Chapter 7
Feb. 15 to Feb. 28	<i>Inner Product Spaces</i>	Chapter 6 (as time allows)

GRADES

A: 100 % – 88 %; **B:** 87.99 % – 74 %; **C:** 73.99 % – 60 %

GRADING SCHEME

Homework (best 5 out of 7 assignments): 25 %
Tests (Jan. 28, Feb. 12, Mar. 1): 75 %

TESTS

There will be three tests. All students are expected to take these tests on the following dates:

- **Test 1:** Monday, January 28, 2013 in class, 3:00pm, SH106
- **Test 2:** Tuesday, February 12, 2013 in class, 3:00pm, SH106
- **Test 3:** Friday, March 1, 2013 in class, 3:00pm, SH106

ASSIGNMENTS

In order to encourage students to keep up with the course and to prepare for the tests, a large number of problems from the text will be recommended. A small number of these problems will be collected and graded for credit.

These **seven homework assignments** will be available electronically and paper copies will be available upon request. Each assignment will be due (in my mailbox in Room SH108) at 4:30 pm on its posted due date. (Expected due dates: Jan. 14, 18, 25, Feb. 5, 11, 19,26.) The best five of these seven grades will be used in the calculation of your course grade.

QUIZZES

Each Friday, a non-credit quiz will be distributed via the course web page. Solutions will be distributed the following week. The questions on the quizzes should be viewed as sample test questions.

PARTICIPATION

Regular attendance is expected. Each student is expected to actively engage in classroom discussion and problem solving, and to present solutions and text material during class period when called upon.

ACADEMIC HONESTY

Each student is expected to familiarize him/herself with WPI's Academic Honesty policies which can be found at

<http://www.wpi.edu/offices/policies/honesty>

All acts of fabrication, plagiarism, cheating, and facilitation will be prosecuted according to the university's policy. If you are ever unsure as to whether your intended actions are considered academically honest or not, please see Professor Martin.

STUDENTS WITH DISABILITIES

If you need course adaptations or accommodations because of a disability, or if you have information to share with me about anything that will impact your performance or participation, please make an appointment with me as soon as possible to discuss how these specifically apply to any aspect of this course. If you have not already done so, students with disabilities who believe that they may need accommodations in this class are encouraged to

contact the Office of Disability Services (ODS) as soon as possible to ensure that such accommodations are implemented in a timely fashion. This office is located in the West St. House (157 West St), (508) 831-4908.

INFORMATION ON THE WEB

The course web page is

<http://www.wpi.edu/~martin/TEACHING/current.html>

In order to conserve paper, many handouts will be distributed electronically via this web page.

IMPORTANT NOTES

- There will be no make-up tests.
- The instructor does not curve grades. The student is able, throughout the course, to compute his or her own current test average and homework average and may judge their performance up to that point using the grade ranges on the first page of this syllabus.
- If a student happens to miss a test for valid reasons (e.g., as evidenced by a doctor's note specifically stating that the student was too ill to participate), then the weight of the remaining tests may be increased to compensate for the missing mark; in such a circumstance, the student will inform the instructor **in person** at his or her earliest chance.