

MATH 340 SYLLABUS, Fall Semester, 2007-08 Academic Year
Lec. 2, TR 11:00AM–12:15PM, B135 Van Vleck Hall

Prof. Richard A. Brualdi
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Text is:
Elementary Linear Algebra, 9th ed.
by B. Kolman and D.R. Hill

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Office Hours: Mon (3:30–4:30 PM), Tues. (3:00–4:00PM), Thurs. (1:00–2:00PM)
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Course Description This is a first course in linear algebra—systems of linear equations, matrix theory with computations and applications, determinants, vector spaces, linear transformations, inner product spaces, and eigenvalues/eigenvectors.

Study Habits If you are coming into this course, as most students are, having just finished the calculus sequence, you will notice some change in emphasis from the problem-oriented calculus. There are many ideas and concepts in this course that we will explore and inter-relate. We will explain some proofs, in order to understand the implications of the various ideas and their dependency on each other. You will be expected to do some simple proofs relating the various concepts and ideas. Of course, we also want to be able to compute and solve problems. There are software tools for solving problems, notably MatLab. We will not explain MatLab in this course. Once you understand the ideas, then solving problems in MatLab is a breeze, but you have to know what answers mean, how to interpret them, how to use them, etc. and this is what you will learn in this course.

There are two complementary resources for you for learning the material in this course: the lecture and the book (I find the book to be a little wordy, but maybe you won't - it has lots of examples and, at least in the first two chapters, some redundancy). It is important that you make use of both of these resources. I expect students to be present at every class. In the lecture I will be less formal than the book (I won't write the book on the blackboard) and will try to motivate you to study and understand the material in the book. Ideally, you should do a first reading, even if it is superficial, of the sections covered in the book before they are discussed in lecture. We will be moving at a goodly pace so it is important not to get behind, as it takes some time to understand all the concepts and their relation with one another. Really, you should be devoting 6–8 hours each week to this course outside of the class.

Exercises (Very important) There are many **exercises** at the end of each section, of which the odd-numbered ones have answers or helpful hints in the back of the book. In general, I won't have you turn in exercises that have answers in the back of the book that you can use for checking. By doing exercises you will get to understand the concepts and ideas and be able to work with them. For each section I have selected some of the exercises for you to do for practice and understanding and some to be handed in for marking - less of the routine ones and more of the more difficult ones. These constitute a minimum of exercises. You will probably be mistaken if you think you can succeed by just doing the exercises that are to be

handed in. For extra practice and understanding, you should be also trying similar exercises with answers in the back of the book for checking, Exams will have problems similar to the assigned exercises at the end of each section, and all the examples/material done in lecture. **I will email you in advance to let you know which exercises are due and when.**

Your work on the exercises to be handed in—not just the answers—should be well-presented in good English, and not written carelessly. While you can work with fellow students on the exercises (and indeed are encouraged to), **the work you hand in should be your own write-up and not copied from someone else.** The assigned homework will be scaled to 50 points, with total scores being a multiple of 5 (so 50, 45, 40, ...). This may not be a lot of points for what will be a lot of work, but the exercises serve several purpose in addition to being used directly towards your grade in this course: making sure you don't get behind (and not letting pressure in other courses lead you to neglect this course), giving you some feedback, and helping you understand the material so that you can do well on exams. **Late assignments will not be accepted.** I allow myself the possibility to increase someone's homework score based on participation in class.

Exams There will be **two in-class exams** during the semester, each **worth 100 points**, and a **final exam, worth 150 points** - see the accompanying schedule. **I do not intend to give make-up exams so you must be present for exams as scheduled;** it takes me 6–8 hours to put a good exam together.

Exam Schedule

- Exam 1 on Thursday, October 11 (in class).
- Exam 2 on Tuesday, November 13 (in class) .
- Final Exam: Monday, December 17, 5:05PM.

Check your schedule against the exam schedule now before it is too late to drop the course.

Rough Schedule

- Part 1: 3 weeks:
 - Chapter 1: read section 1.1 on your own; skip 1.7 and 1.8
 - Chapter 2, skip section 2.5
- Part 2: 1 1/2 weeks
 - Chapter 3: skip section 3.6
- **Exam on Chapters 1,2,3 on October 11.**
- Part 3: 4 weeks

- Chapter 4: read section 4.1. on your own
- Chapter 5: skip section 5.6, although depending on time, we may cover part of it.

• **Exam on Chapters 4 and 5 on November 13.**

- Part 4: 2 weeks
 - Chapter 6: skip sections 6.4 and 6.6.

- Part 5: 2 weeks
 - Chapter 7

• **Final Exam: December 17, 5:05–7:05 PM**

Grades These will be based on a **total of 400 points** according to the following standard (and exams will be constructed with this standard in mind; **if necessary, I will adjust exam scores by adding points**):

Grade	Accomplishment level	Points
<i>A</i>	superior	370 ↑
<i>AB</i>	excellent	355 ↑
<i>B</i>	proficient	330 ↑
<i>BC</i>	good	310 ↑
<i>C</i>	acceptable	275 ↑
<i>D</i>	mediocre	240 ↑
<i>F</i>	unacceptable	0 ↑

You are encouraged to form study/problem groups with your classmates; things not clear to you may become obvious when you try to explain them to others or when you hear other points of view. Sometimes just verbalizing your mathematical thoughts can deepen your understanding. As already mentioned, if you discuss with others the exercises, each person should write up her/his own version of the solution.

Calculator Policy: It is acceptable to use calculators on exams to do arithmetic computations, but the computations are to be exact. So an answer which has $\sqrt{2}$ in it is to be presented as such and not as 1.414.

Attendance: It is expected that each student will be present at all of the classes. Office hours are for students who need additional help beyond that given in the class; they are not substitutes for class.

Note to McBurney Disability Resource Center students: Students of the Center who are recommended for some accommodation (e.g., extended time on exams) should contact the instructor about this no later than September 16, 2005.