Outline for Math 480 Section 70
Vector Spaces and Matrix Algebra
Spring 2009

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Prerequisites: Any 300-level course with a MATH or STAT prefix, or consent of instructor.

Textbook: Matrix Analysis and Applied Linear Algebra by Carl D. Meyer. Publisher: SIAM.

Meetings: This will be an online course taught through WebCT. Therefore, all the interaction will happen on WebCT. Instead of regular lectures, I’ll be providing the material on weekly basis, which will help you in reading the textbook. The material I will supply will single out the most important points made in the textbook, and will aid you in better understanding of the text. In addition to this, there will be plenty of opportunities for us to communicate through WebCT. I also plan to hold several conference calls, roughly on a monthly basis, during which I will try to sum up the most important topics of the course, and provide you with guidelines for better grasp of the material.

Office Hours: Since this is an online course, I will hold weekly virtual office hours on WebCT, which will happen through the chat window available on WebCT. I will make myself available every Thursday, from 10 AM to 12 PM, Las Cruces time. In addition to this, you will have an opportunity to schedule individual chats with me through WebCT. I encourage you to take advantage of this opportunity.

Course Objectives: Matrices and linear algebra arise in all parts of mathematics and in the disciplines that use mathematics. Matrices are a convenient means to encode information, and linear algebra provides the methodology to analyze and simplify matrices so that they become an effective tool in applications. The main objective of Math 480 is to study the basic linear algebra and its use in applications.

Material: We will cover portions of the first four chapters of the book. I also hope to be able to cover parts of chapters 6 and 7. Here is a more detailed account of what I plan to cover.

Chapter 1: Section 1.2 (in detail); Section 1.3 (briefly)
Chapter 2: Sections 2.1 through 2.5 (in detail)
Chapter 3: Sections 3.2 and 3.3 (in detail); Section 3.4 (briefly); Sections 3.5 through 3.7 (in detail); Section 3.9 (briefly); Section 3.10 (in detail)
Chapter 4: Sections 4.1 through 4.5 (in detail); Sections 4.7 and 4.8 (briefly)

I would also like to cover parts of Chapter 6 (Determinants) and the beginning of Chapter 7 (Eigenvalues and Eigenvectors), but it will depend on how much time we will spend on the first four chapters.

Grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>35 %</td>
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<tr>
<td>Midterm</td>
<td>25 %</td>
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<tr>
<td>Cumulative Final Exam</td>
<td>40 %</td>
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Homework: I will assign homework on a weekly basis, but will collect only samples of assigned homework once in two weeks for grading. You won’t know in advance which samples I’ll be collecting, which means that you will need to have them all done, and only upload the ones I’ll collect. You will have a short time window for uploading your homework solutions. Therefore, it is crucial that you have them all done by the due date.

I will require that you do your homework either in Scientific WorkPlace (which is available on campus), in Scientific Notebook, or in Word with some math capabilities, such as handling matrices. This is extremely useful in this course, because we will be mostly working with matrices.

To succeed in this course, daily work on practice problems is required. A student who can complete all homework problems will have a good grasp of the course material, and many of the questions on the exams will be of a similar nature to those assigned as homework.

Homework must be written up in a comprehensible way. I will not accept late assignments without a medical certificate or other university approved excuse within a reasonable time of the missed work.

Midterm: The midterm exam will roughly consist of 4 to 5 problems, and will cover material from the first half of the semester. It will be given in the first week of March. I will give you a generous amount of time for you to first solve all the problems, then to type them up in your editor, and finally to upload them to WebCT.

Cumulative Final Exam: The final exam will roughly consist of 8 to 10 problems, and will cover the whole course material. It will be given in the second week of May. It will be conducted the same way as the Midterm, but you
will, of course, have even more time to complete it.

**Missed Test Policy:** Students must notify the instructor **before** an exam is missed in order to qualify for a make-up exam. Failure to do so will result in a “0” for any missed exam. The only valid excuses for missing an exam are documented illness, death in the family, or required participation in any university related function. Supporting documentation is required.

**Withdrawals and Incompletes:** You have the primary responsibility for withdrawing from the course. **The last date to drop with a “W” is Monday, March 9th.** Under University policy, an **I** grade is allowed only if a student has passed the first half of the course, and is precluded from completion of the second half of the course by a documented illness or family crisis.

**Policies:** I expect students to write clear prose and show some mathematical maturity in the work they turn in.

**Important Notes:**

- At the end of the final examination, the course is over, and there are no more opportunities to submit additional work.
- I will not compose extra credit assignments for students who want to try to compensate for poor results in another component of the course.

**Disabilities:** If you have or believe you have a disability, you may wish to self-identify. You can do so by providing documentation to the Services for Students with Disabilities (SSD) office in Corbett Center Room 244 at 646-6840. Appropriate accommodations may then be provided for you. If you are already registered with the SSD office, please make sure that I have received a copy of your “Accommodations Memo” from the SSD within the first two weeks. It is your responsibility to inform your SSD representative or me if the services or accommodations provided are not meeting your needs.