MA 322-021 Syllabus
Matrix Algebra & Applications
2nd Summer Session, 2009

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Office Hours: Tuesday, Wednesday, and Thursday 1-2pm. Also by appointment.

Text: *Linear Algebra and Its Applications*, 3rd Edition (Update), by David Lay

Class Times & Location: M-F 11:30am-12:30pm in CB 339

Prerequisites: MA114–Calculus I

Course Website: A course calender, this syllabus, and all material handed out in class can be found at http://www.ms.uky.edu/∼jroberts/index_files/ma322.htm.

Course Description: Linear algebra has its roots in the study of simultaneous linear equations in several variables. The development of systematic methods to find and to discuss the solutions of linear equations has lead to fundamental concepts and methods such as the algebra of matrices, Gaussian elimination, vector space, dimension, linear transformation, determinant, eigenvalue, inner product. The goal of the course is to become very familiar with all these objects. Ideas, methods, and the language of matrix algebra are widely used in all areas of mathematics and most other sciences.

Homework: Homework is the heart of this course and will be assigned at the end of each section covered in class. I encourage you to discuss homework with me during office hours and with classmates, however, **please spend time working on the problems yourself before seeking help**. Homework due dates can be found at the course website.

Please observe the following rules for homework:

- Use loose-leaf paper–do not use paper torn out of a notebook. Write only on one side of each sheet.
- Make sure your work is neat and mark your final answer if appropriate.
- Staple your homework and be sure that your name is clearly indicated on the first page.

Homework that does not meet these requirements will NOT be graded.

Extensions: Late homework will not be accepted, with the following exception: three times this semester you may hand in a homework assignment up to three lecture days later than requested. Please save these for emergencies and be honest (for instance, dont consult solutions handed out after the original due date).

Attendance & Participation: Though attendance will not be taken please make every effort to attend every class. Part of your grade bases on participation, taking part in class discussions and activities, and you must be in class to participate. Missing one or two classes won't cause you to fail, but it is very easy to fall behind in a course like this one (see "Final Note").

Quizzes: Every Friday (expect for exam days) there will brief quiz on the topics covered the preceding week. Make-up quizzes will be given in case of a university excused absence. Otherwise, an unexcused absence on a quiz day will result in a score of zero for the quiz.

Exams: There will be 2 midterm exams as well as a final. The emphasis on each exam will be the material covered since the previous exam. However, every exam, as well as the final, is comprehensive. Dates for the exams are:

Friday June 26 (Exam 1), Friday July 17 (Exam 2), and Thursday August 6 (final exam).

Grading: Homework/Participation is worth 100 points. Each quiz is worth 5 points for a total of 50 points. The first exam is worth 100 points, the second is 150 (100 point in class component and 50 point take-home component), and the final is worth 100 points. So there is a total of 500 possible points. Your grade will be determined by the following scale:

A	=	90% to 100% (450 points and above)
B	=	80% to 89% (400 to 449 points)
C	=	70% to 79% (350 to 399 points)
D	=	60% to 69% (300 to 349 points)
E	=	0% to 59% (below 300 points)

Academic Honesty: The minimum penalty for cheating is a failing grade in the course. Working together on homework is highly encouraged, but directly copying answers or using unauthorized out-of-class materials is considered cheating.

Tentativity: I reserve the right to modify this syllabus when/if necessary. However, I will give you at least 48 hours notices before any changes go into effect.

Final Note: Many students find their first course in linear algebra (aka, matrix algebra) to be challenging-even students who have done exceptional in their other mathematics classes. This is for a variety of reasons, including the fact that it is frequently their first introduction to mathematical proofs, as well as the numerous definitions, concepts, and theorems involved in mastering the subject.

To combat this, I encourage you to attend every class. Also, it is a good idea to read the text (it really is very readable, in contrast to most calculus texts). It is especially helpful if you read the section that will be covered before class. Before trying the homework problems, go back through your notes. If there are proofs, try to follow each step, as well as the overall theme of the proof. Why does the proof work? Try to find examples that apply the proof. Try to find counterexamples; if you think that you have succeeded in finding a counterexample for a given theorem, then you've most likely misunderstood something and now know that you need to review the ideas again.

Try to make connections-that is, when a new concept such as linear transformation is introduced, go back through your notes and the text to connect the idea to such things as matrix equations and homogeneous linear systems (all of which we'll have discussed by the second week of class).

Finally, stay up to date. If you find yourself falling behind, make an effort to catch up. Visit during my office hours (or other times), talk to classmates, etc. If you don't, you may find the end of July approaching and still be struggling to master concepts from the end of June.