MATH 4305 SYLLABUS

SPRING 2001

Course Number:	Math 4305 A2
Course Name:	Topics in Linear Algebra
Lecture Time:	TuTh 12:05–1:25 p.m.
Lecture Room:	Skiles 256
Instructor:	Dr. Christopher Heil Office: Skiles 260 Office Phone: (404) 894-9231 Email Address: `heil@math.gatech.edu`
Office Hours:	TBA, and by appointment
Contacting me:	I encourage you to contact me at any time by email. I try to check email evenings and weekends and to respond to questions quickly. Try it, it works! Please don't be afraid to set up other appointment times if you are having trouble getting in touch with me.
Textbook:	*Introduction to Linear Algebra*, by Gilbert Strang, SECOND EDITION
Material:	Introduction to Vectors (Chapter 1) Solving Linear Equations (Chapter 2) Vector Spaces and Subspaces (Chapter 3) Orthogonality (Chapter 4) Determinants (Chapter 5) Eigenvalues and Eigenvectors (Chapter 6) Linear Transformations (Chapter 7)

Comments. This course is likely to be very different from any math course that you might have had previously. The focus is not on *formulas*, but on *concepts*. You already know how to solve a system of linear equations, or how to multiply two matrices together. Our goal to is *understand* matrices and vectors, not merely to manipulate them. You will be *proving and deriving* more than you will be calculating. The early sections of the text are covered very quickly.

Grading. We will have six (or maybe seven) take-home assignments, an in-class midterm exam, and a final exam, scored as follows:

6 Homeworks	15 points each
Midterm Exam	30 points
Final Exam	50 points
TOTAL	170 points

Letter grades will be based on your accumulated points at the end of the quarter, according to 90%, 80%, 70%, 60% cutoffs (although I may adjust the cutoffs downward at the end of the quarter, depending on class distribution). With six assignments, this would give the following breakdown of grades in terms of points:

153–170	A
136–152	B
119–135	C
102–118	D
0–101	F

At the end of the course, I'll evaluate the class distribution and decide if a curve is needed. I'll only curve *down* from the above cutoffs, not up. Grades for degree candidates will be prorated, based on their scores on the homework and midterm only.

Homework. Homeworks will consist of problems selected from the book or problems that I make up. You will have one week to complete the assignment. A subset of these problems will be selected for grading.

Two or more of the homeworks will be designated "Take-Home Exams", and on these assignments you will be required to work independently. On the other homeworks you will be allowed (and encouraged) to work together with other students, as long as you each independently write up your own solutions.

On both kinds of homework you are allowed (and encouraged) to ask me questions, although you should try to think about the problems before asking. I strongly encourage you to work extra problems from the book on your own.

If for any reason I suspect that any students collaborated on a take-home exam assignment, then the remaining take-home exams will be replaced by one-hour in-class exams.

Exams. The date for the in-class midterm exam will be announced in class. Our scheduled date for the final is

Final Exam	Friday, May 4, 8:00–10:50 a.m.

The exams are closed-book and closed-notes, except that you may bring one notesheet to each exam. The final is comprehensive.

MATH 4305 AG, AU, Q, RCC: FALL 2011

Linear Algebra.

Classes:	MWF 9:05-9:55, Sustainable Education 110.
Professor:	Luca Dieci, Skiles 215, ph. (404) 894-9209
	e-mail is best: dieci@math.gatech.edu
Office Hours:	MW 10:15-11:45 or by appointment.
Textbook:	"Linear Algebra with Applications,"
	by O. Bretscher, 4th Edition, Prentice Hall. The textbook is **required**.
Prerequisites:	Calculus Sequence.

This class is aimed at senior undergraduate and beginning graduate students who want to learn the basics of linear algebra. We will try to cover all of the book. **Warning**: Most of you have already seen much of the material in this class, but please do not underestimate the amount of time that mastering the material will require. Mathematical precision will be expected.

Grading will be based on **5 out 6 Quizzes**, **2 in class Exams** (the *Midterms*), and the **Final Exam**.

- Homework will be assigned but not collected. Quizzes and Exams will closely resemble homework assignments.
  - You are encouraged to discuss the homework with me and with each other. Please seek advice quickly if you cannot solve a problem: Use my office hours!
- There will be **NO** make-up quizzes or Exams. However, the lowest Quiz grade will be dropped.
  - Each Quiz will count 9% of your final grade. A Quiz will be 25 minutes long, at the end of a class period, and typically it will consists of solving some of the problems assigned as Homework.
  - Each Midterm will count 12.5% of your final grade. A Midterm will be 50 minutes long.
  - The Final Exam will count 30% of your final grade. You **must take the Final** in order to pass the class.
- All Exams will be "closed book", "closed notes", "No calculators". For the Midterm Exams and the Final Exam, you will be allowed to bring with you a one page 8.5" $\times$ 11" "cheat sheet" with anything you want written on it, both sides. Nothing else.

Communication on changes in schedule, or other relevant class information will be posted on my web page. Go to `http://www.math.gatech.edu/~dieci` and follow the class link.

Quizzes and Exams dates.	
F Sept 2	Quiz # 1
F Sept 16	Quiz # 2
F Sept 30	Exam # 1
F Oct 14	Quiz # 3
F Oct 28	Quiz # 4
F Nov 11	Quiz # 5
M Nov 21	Exam # 2
F Dec 2	Quiz # 6
W Dec 14	Final Exam, 8:00-10:50

Remember that all students at Georgia Tech are expected to adhere to the Honor Code. See

http://www.osi.gatech.edu/plugins/content/index.php?id=46

People caught cheating will be given a grade of 0 and reported to the Office of Student Integrity.

MATH 4305, TOPICS IN LINEAR ALGEBRA
COURSE SYLLABUS
SPRING 2007

INSTRUCTOR: ANDRZEJ SWIECH
LECTURES: TR 12:05-13:25 pm, SKILES 254
OFFICE: SKILES 235B
OFFICE HOURS: TR 2:00-3:00 pm
PHONE: (404) 894-2705
E-MAIL: swiech@math.gatech.edu

TEXTBOOK: O. Bretscher, *Linear Algebra with Applications.*

MATERIAL TO BE COVERED AND COURSE OBJECTIVES: The course introduces the students to basic concepts of linear algebra and their applications. We will cover the following topics:

(1) Linear equations.
(2) Linear transformations.
(3) Subspaces of $\mathbb{R}^n$ and their dimensions .
(4) Linear spaces.
(5) Orthogonality and least squares.
(6) Determinants.
(7) Eigenvalues and eigenfunctions.
(8) Symmetric matrices and quadratic forms.
(9) Selected topics (if time allows) from: positive matrices and Perron-Frobenius theorem, applications to differential and difference equations, Jordan canonical form.

GRADING: There will be three tests (February 8, March 8, and April 12), homework assignments, and the final exam. Each test and the homework assignments will count for 16% of the final grade, and the final exam will count for 36%. Your grade will be based on how well you can solve problems and compute using the theory. You will not be asked to reproduce proofs. To get an A, respectively B,C, and D, your final score will have to be greater than 85%, respectively 70%, 55%, and 40%.

Please be aware of the Georgia Tech Honor Code and follow it carefully. In particular please make sure that all the work you submit is your own.