Syllabus for Math 4377
Advanced Linear Algebra

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Instructor Web Site: www.math.uh.edu/∼tomforde
Course Web Site: www.math.uh.edu/∼tomforde/Math4377.html

Office Hours: MW 2:30PM – 3:30PM
          F 2:00PM – 3:00PM
          (or by appointment)

Note About Office Hours: I encourage you to come by my office if you have any questions, need help with homework problems, or would just like to talk about the material. If for some reason you are unable to make it to Office Hours, you are welcome to email me to set up an appointment for another time.

Meeting Times: Lecture: MW 1:00 – 2:30PM in 350 PGH.

Prerequisites: Math 2431 (Linear Algebra) and a minimum of three semester hours of 3000-level mathematics courses.

Course Description: This class serves as a second course in Linear Algebra. Topics include: linear equations, vector spaces, linear transformation, polynomials, and determinants. Throughout the course we will examine these topics from a viewpoint that emphasizes *abstraction* and *generality* to a greater degree than you have experienced in previous linear algebra courses. Whereas you may have familiarity working with "vectors in $\mathbb{R}^n$" or "matrices", we will see that the important properties of these objects are shared by "vectors in any abstract vector space" and general "linear transformations".

In addition to prior experience with linear algebra, it will also be assumed that you have had experience with reading and writing proofs. Throughout the course there will be great emphasis placed on communication and writing. It is not enough to simply know to solve a problem — you are also responsible for explaining that solution and communicating it in writing. When writing proofs there are three things that you should be aware of:

(1) Writing mathematics requires full English sentences, with the understanding that certain mathematical symbols can replace the words they represent (so that the phrase "x is a member of the set of real numbers and x^2 is not equal to 4" may be written as "$x \in \mathbb{R}$ and $x^2 \neq 4$").

(2) When you write up a proof I will grade it for the way it is written as well as the ideas that are in it. Consequently, you should follow the rules of English usage, such as using proper grammar and punctuation.

(3) Your proofs will be graded on the degree to which they are: Correct, Clear, and Concise

Text: The textbook used for this course is *Linear Algebra (2nd Ed.)*, by Kenneth Hoffman and Ray Kunze.

Course Web Page: The course web page is located at

$$\text{www.math.uh.edu/}{\sim}\text{tomforde/Math4377.html}$$

On the course web page you will find the homework as it is assigned, as well as a copy of this syllabus, exam dates, and announcements as they are made.

Grading: The final grade for the class will be determined as follows:

Class Participation:	5%
Homework:	25%
Exam 1:	20%
Exam 2:	20%
Final Exam:	30%

Attendance: It is vital to attend every lecture and take careful notes. Some lecture material does not appear in the textbook. Questions on the exams will be drawn from homework, reading, and lectures. I also encourage you to ask questions and participate in class. As stated above, 5% of your final grade will be based on class participation.

Reading: Reading assignments will be given weekly on the course web page. Completing the reading assignments is just as critical as doing the written homework.

Homework: A list of homework problems will be given every week on the course web page. Each week I will give you a list of homework problems that will give you additional practice but do not have to be turned in, as well as a list of homework problems that will be turned in and graded.

With regards to the homework that is turned in, the following policies will be in effect:

- Homework without a name will not be graded.

- If your homework is more than one page it should be stapled in the upper left-hand corner.

- Homework is due at the beginning of class on Mondays. Late homework will not be accepted.

- Homework that is not picked up within two weeks of the date it is handed back will be discarded.

- Your lowest homework score throughout the term will be dropped when calculating your final grade.

Exams: There will be three exams: two midterm exams during the semester and one final exam at the end of the semester. Each exam will consist of two portions: A take-home portion worth 50 points, and an in-class portion worth 50 points. The dates of the in-class portions of the exams are

In-Class Exam 1: Wed., Sept. 20 from 1:00–2:30PM in class.
In-Class Exam 2: Wed., Oct. 25 from 1:00–2:30PM in class.
Final: Wed., Dec. 13 from 2:00–5:00PM in our usual classroom.

The take-home portion of each exam will be given to you approximately one week before the in-class portion, and it will be due at the time of the in-class portion. It is University of Houston policy that final exams are not subject to rescheduling, so please do not make plans to leave the Houston area until after the final exam time.

Calculator Policy: Calculators will not be allowed on in-class exams.

Makeup Policy: In general, missing the In-Class portion of an Exam or not turning in the Take-Home portion of an Exam when it is due results in

<u>a score of zero</u>, and you will not be allowed to make up the work. Exceptions may be made in the case of extreme circumstances, such as a documented, serious illness. In the event that you cannot be present for an exam, and you believe your circumstances warrant special consideration, you need to speak to me *in advance*, and you need to take the exam *before* (and not after) the rest of the class.

Policy on Incompletes: Incompletes are given only in very unusual circumstances, and never just to prevent a bad grade or provide the student with more time to study for an exam.

Honor Principal: University of Houston students are expected to adhere to the Academic Honesty Policy (see the Student Handbook for more details). In this course this shall mean the following: Homework can and should be worked on and discussed with others. However, the write-up should be independent and in your own words. In addition, exams (including take-home exams) shall be worked on independently. You are allowed to use your textbook and class notes for the take-home portion of the exams, but the in-class portion of the exams is closed books and closed notes. Until the exams are graded you are not allowed to discuss the problems with anyone except the instructor. In addition, if you are aware of anyone who is cheating or receiving unfair, outside assistance, you are honor bound to inform the instructor of what is occurring.

Anyone caught cheating will receive a failing grade in the course, and be turned over to the department chair and dean for further disciplinary action.

Special Needs: Any student with a disability or chronic health problem for whom special accommodations would be helpful is encouraged to discuss with the instructor the types of assistance that might be offered.