Welcome to Math 304 Sections 504 and 508 – Spring 2014

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Office hours:	TTh 4-5:30 pm and by appointment		
Instructor's Website:	http://www.math.tamu.edu/~jmlinhart		
Course Website:	http://www.math.tamu.edu/~jmlinhart/m304		

Class time:	508: TTh 12:45 – 2:00 pm	**Location:**	BLOC 160
Class time:	504: TTh 2:20 – 3:35 pm	**Location:**	BLOC 160

I use Piazza to communicate with the class. Important course information and updates/modifications to the course schedule are kept current on Piazza:

http://piazza.com/tamu/spring2014/math304sections504and508/home

Required text: S. J. Leon: *Linear Algebra with Applications, 8th ed.* Pearson, 2010; ISBN 0136009298.

Catalog Title and Description: (CREDIT 3.0) *Linear Algebra* Introductory course in linear algebra covering abstract ideas of vector space and linear transformation as well as models and applications of these concepts, such as systems of linear equations, matrices and determinants. Prerequisite: MATH 152 or equivalent.

Course Outline and Schedule

1 MATRICES AND SYSTEMS OF EQUATIONS (Material will be covered in 2 weeks) Sections 1.1-1.5

2 DETERMINANTS (Material will be covered in 1 week) Sections 2.1, 2.2, 2.3 (if time permits)

3 VECTOR SPACES (Material will be covered in 3 weeks) Sections 3.1-3.6

4 LINEAR TRANSFORMATIONS (Material will be covered in 1.5 weeks) Sections 4.1-4.3

5 ORTHOGONALITY (Material will be covered in 3 weeks) Sections 5.1-5.6

6 EIGENVALUES (Material will be covered in 1.5 weeks) Sections 6.1-6.3

We may do eigenvalues before orthogonality; an announcement will be made in class and by email if this happens.

Generally students find the material from chapter 1 and 2 much easier than the material covered during the remainder of the semester. Be prepared for the course to get more difficult after the first 3 weeks.

Course Learning Outcomes: Linear equations are perhaps the only problems in mathematics that can actually, in some sense, be solved or have solutions well approximated in higher dimensions, and they are the foundation for most applications in applied mathematics and understanding of more complicated (nonlinear) problems. This course in linear algebra introduces you to much of the mathematical abstraction and machinery that underlies our understanding of linear equations and linear (vector) spaces. We will use systems of linear equations to introduce us to the more abstract concepts of matrix, vector, vector space, basis, and linear transformation. The most important learning outcome is the understanding of what these things are and how they fit together. Students are expected to learn how to do proofs as well as computations in this course.

Grading policy: Grades will be calculated according to the following percentages:

Homework	30%	A = 90-100%	S = 70-100%
Group/Individual Work/Peer Evaluation	10%	B = 80-89%	U = below 70%
Two Midterms	40%	C = 70-79%	
Comprehensive Final Exam	20%	D = 60-69%	
Total	100%	F = below 60%	

Because of privacy rights, I cannot discuss grades over email or telephone.

In Class Exams
Exam 1: Thursday February 20
Exam 2: Thursday April 17

Final Exam (BLOC 160)
508: Wednesday, May 7: 8 am-10 am
504: Wednesday, May 7: 1-3 pm

Homework: Conscientious effort on the homework is required for success in this course. Notice that your homework grade, **30%**, is higher than any individual exam score. Suggestions for success:

1. You should budget 6-9 hours per week for homework outside of class.

2. Start on the assignment as soon as you can after it is received.

3. Attempt to work on homework every day or at least every other day. The hardest part is usually getting started. Find a quiet place to work, get your book and notes together. Put away distractions such as your cell phone, TV, or laptop. Then, set a timer for 30 minutes (or 15 if you are having a bad day) and resolve to put your best effort in for at least that length of time.

4. Discussing problems and solutions with peers and using the internet is encouraged, with two caveats.

   - Before you go ask or look for a solution, make an honorable effort to solve the problem on your own. Spend time thinking and strategizing before asking or searching for help.
   - You must write up your understanding of a solution **on your own**. You may not copy anyone else's work. See my guide to group work and using outside resources, http://www.math.tamu.edu/~jmlinhart/groupwork.html, on the web.

5. As you progress in your university studies and in your career, problems get more and more difficult to solve. You may have to start with easier unassigned problems before you are even ready to start to work on an assigned problem. Some problems may take more than an hour to solve. Persistence pays off.

6. Explain what you are doing. Use your words. This will help you to understand the concepts critical to success in the class, and will help you get a higher grade.

7. I am always happy to help you if you are stuck. You will get the most out of my help and the department's Help Sessions if you attempt the problem on your own or with your peers before asking an expert.

8. Do your scratch work before you do a final write-up of the homework. What you hand in should be neat and professional. Put your name, section, and date in the upper right corner, and staple all pages together. Points will be deducted for sloppy work. Points may be added for particularly well-organized and neat work!

Homework will be due on Tuesdays by the end of office hours at 5:30 pm. A 10% penalty will be assigned for homework not handed in late, but before the end of office hours on Thursday. After that, late homework will be given a zero.

You are all advanced students with other responsibilities. If you have a known conflict or issue, **asking for an extension more than 24 hours before the due date is most likely to be greeted with a favorable outcome.** Use this power sparingly. Repeated, regular requests will eventually result in a refusal to grant further extensions.

Group/Individual Work/Peer Evaluation: I expect to have regular individual and/or group assignments/quizzes to be completed in class, with a few activities taking place outside of class. Your score for this portion of the grade will be the **lowest** of your scores on the individual assignments, group assignments, and peer evaluation by group members. Plan on bringing a Scantron Quizzstrip (short green Scantron) to class daily.

If I do not have enough of these assignments to justify 10% of your grade, your homework score will be increased proportionally and this portion of your grade will be decreased proportionally.

Midterms and Final Exam: Midterms and the final exam will be out of 50 possible points. You may be given the opportunity to accept your course grade as averaged without the final exam. In this case, the two midterms will count for 70% of the final grade, and

- Your homework average must be above 70%.
- You must hand in the final homework and get a score on it above 70%.
- You must attend and participate in all classes after the final midterm unless you have a university excused absence.

Any questions regarding grading/scoring of exams must be made before the exam leaves the room or no change in grade will be made. If you need more time to look at an exam and do not want to lose your right of protest, hand it back to me at the end of class, and arrange to come to office hours.

The learning process: Mathematics is not a spectator sport. You learn through practice and participation. You need to budget at least 6-9 hours a week for work outside of the classroom.

- Actively listen to the lecture, think, ask questions.
- Work homework problems, read the book, ask questions.
- Take an exam, reflect on what you were able to do or not, and why, ask questions.

The classroom: Phones, tablets or laptops easily distract neighboring students, and your courtesy is appreciated during class. These should be put away during class, unless you have some kind of a personal emergency or are using them to take notes.

I expect to have individual and group assignments and quizzes occur approximately weekly during class, and you will often be asked to work and think during class. Ask questions. Answer questions. Get involved with what is going on. Not everything you are expected to know is covered in the textbook. Come to class, pay attention, and think while you are there.

Carry your ID, paper, #2 pencils and a Scantron QuizzStrip with you to class every day.

Communication: Piazza the preferred way to ask and answer questions about the course and homework. You can contact me privately on Piazza or email me at jmlinhart@math.tamu.edu. I usually respond within 24 hours. When writing to me, please include your full name. There are some email writing tips on the course website.

Course information is posted on Piazza. Plan on checking Piazza daily.

Make-ups and Excused Absences: Students must make arrangements in advance if they are not able to hand homework in on time or must miss an exam. If you have a field trip or other prior conflict with an exam or if you are ill on the day of the exam, keep in mind that make-ups are only given if written evidence of an official University excused absence is provided in a timely manner. (See *University Student Rules.*, http://student-rules.tamu.edu/). Let me know what is going

on in writing, in advance, if possible. If there is an accident or an emergency that precludes advance notice, call me immediately and get me documentation of the emergency in writing as soon as you can. If I don't hear from you within 2 working days of the absence, I will not allow a make-up. You need to take the make-up examination or assignment within three days of missing it (unless the excused absence is prolonged). It is your responsibility to schedule a make-up!

The "explanatory statement for absence from class" form is not sufficient written documentation for an excused absence. If you are ill or injured, you need to provide me with a note from a health care professional excusing you from work or school. You may go to your own doctor or to the Student Health Center in Beutel, http://shs.tamu.edu/, and obtain such a note. Doctor visits at the Student Health Center are free to students. Ask for an excuse when you are seeing the doctor.

The note should provide me with all information I need to confirm that your absence is excused, i.e., names, phone numbers, email addresses.

Scholastic Dishonesty: You are encouraged to work together on the suggested homework problems, but do not copy another student's work. If you are unsure of what this means with regards to scholastic dishonesty, guidelines for working together are available on the course website, and I will be happy to answer questions about this. I take academic integrity seriously, and I expect you to do so too.

Always abide by the Aggie Code of Honor.

AGGIE HONOR CODE:

"An Aggie does not lie, cheat, or steal or tolerate those who do"

When you accepted admission to Texas A&M University you assumed a commitment to uphold the Honor Code.

For additional information please visit http://www.tamu.edu/aggiehonor/.

Extra help: Please ask questions in class, come by my office hours, go to the help sessions, or make an appointment to see me. Please talk to me before hiring an outside tutor or going to a tutoring service. I may have options for you that will be more helpful and perhaps even less expensive.

Americans with Disabilities Act (ADA) Policy Statement: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, http://disability.tamu.edu/, in Cain Hall or call (979) 845-1637.

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