Syllabus

Applied Matrix Theory

Math 551

Instructors: Prof. Maldonado, Prof. Treinen

MWF CW 146, labs F CW 041

Sections #14163 1:30-2:20, #14164 8:30-9:20


Material: The material to be covered in this course is mostly contained in Chapters 1 through 6 of the textbook. The material includes systems of equations, matrices, vectors, orthogonality, determinants, eigenvalue problems. Some additional topics will also be included, particularly when it comes to current applications of matrix theory to engineering, image processing, and computer science.

Homework: They will be assigned weekly. A few of these problems will be checked, returned, and used to determine your homework grade. Homework problems are a crucial portion of this course. Review the textbook and your classroom notes before addressing the homework problems.

Drop your papers in the MATH551 Prof. Maldonado HW box or the MATH551 Prof. Treinen box (according to who your instructor is). These HW boxes are located adjacent to CW 120.

Do not submit HW in class.

You are allowed (and encouraged) to use MATLAB when solving HW problems. Write “I used MATLAB to get the following answers...” on your papers to let the grader know that you got MATLAB into play and he does not take points off for “not showing work”.

No late homework will be accepted.

Matlab Projects: There will be 10 (ten) MATLAB projects which will be discussed in the computer lab (CW 041) on Fridays. The contents of the labs can be checked in the lab assignments schedule. The online assignments include a list of keywords. These are commands that will be used during the assignments. These MATLAB projects represent a significant part of the course. The lab sessions will have both: a theoretical component and a computational component. Therefore, they are also considered as part of the lectures. The MATLAB projects are designed to be worked out during the lab sessions and during the lab help hours, and to be submitted the following week. No late lab assignment will be accepted.

Typically, you will have to submit a printout of your MATLAB session or a MATLAB file performing the required task. There will be solutions to the MATLAB coding projects posted online, so you can check how your code should work. This will help you to debug your code by comparing its performance with the one posted in the lab assignments schedule.

During the lab sessions the assignments will be addressed and hints and help will be given. Also, office hours are available to discuss the MATLAB projects. This course provides 15+ help hours for HW and MATLAB projects.

To summarize, the MATLAB assignments will be posted online and they will be discussed during the Lab sessions. You have one week to submit your results, you can compare the performance of your code with the one posted online, and office hours...
are available. All this should be enough for you to successfully submit your MATLAB assignments.

We will use Matlab for the programming portion of the course. It would be useful to practice a little. You will need a way to save your files, such as a USB thumb drive, when leaving the computer lab. Also, check http://www.math.ksu.edu/main/course_info/help/mpcclhrs.htm for free time in the lab, and possibly locate other on campus resources, such as engineering labs, or one of the university servers. There are student versions of Matlab available, and you may want to purchase a copy for your use off campus. There are also ways to access the Math Department’s computers with Matlab. See Prof. Maldonado’s webpage for a guide.

In-class Exams: There will be two in-class exams given throughout the semester. All Exams in the usual classroom.
In-class test 1: Friday, October 3rd, at the usual class time
In-class test 2: Friday, November 21st, at the usual class time

Final Exam: There will be a final exam.
Prof. Maldonado’s section (MWF 1:30pm-2:20pm) is on Wednesday, December 17th, 2008, from 11:50am to 1:40pm.
Prof. Treinen’s section (MWF 8:30am-9:20am) is on Friday, December 19th, 2008, from 11:50am to 1:40pm

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<thead>
<tr>
<th>Grade Distribution</th>
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<tbody>
<tr>
<td>Homework</td>
<td>200 points</td>
</tr>
<tr>
<td>Lab Projects</td>
<td>250 points</td>
</tr>
<tr>
<td>First In-Class Exam</td>
<td>150 points</td>
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<tr>
<td>Second In-Class Exam</td>
<td>150 points</td>
</tr>
<tr>
<td>Final Exam</td>
<td>250 points</td>
</tr>
<tr>
<td>Total</td>
<td>1000 points</td>
</tr>
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Grades will be calculated by the scale 100%-90% = A, 89%-80% = B, 79%-70% = C, 69%-60% = D, below 59% = F.

Missed Class Policy: Makeup exams/assignments require documentation of a valid, serious excuse. Moreover, arrangements must be made before the exam if appropriate (e.g. travel for athletics, your own wedding, etc.) Excused absences will be rarely and reluctantly granted.

Disabilities: Any student in this class who has a disability that may prevent him from fully demonstrating his abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and to facilitate the educational opportunity.

Regarding Academic Honesty: Kansas State University has an Honor System based on personal integrity, which is presumed to be sufficient assurance in academic mat-
ters one’s work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor System. The policies and procedures of the Honor System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The honor system website can be reached via the following URL: www.ksu.edu/honor.

A component vital to the Honor System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: “On my honor, as a student, I have neither given nor received unauthorized aid on this academic work.” A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

Classroom Conduct: All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Government Association By Laws, Article VI, Section 3, number 2*. Students that engage in behavior that disrupts the learning environment may be asked to leave the class.

*Disruption or obstruction of teaching, research, administration, disciplinary proceedings, other University activities, including its public-service functions on or off campus, or other authorized non-University activities.

Changes: The instructor reserves the right to modify the contents in this description if conditions arise during the semester that make such changes desirable. Such changes will be announced in class; it is your responsibility to keep abreast of such changes.

Calendar:

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Last date to drop</td>
<td>September 29</td>
</tr>
<tr>
<td>Last date to withdraw</td>
<td>October 31</td>
</tr>
<tr>
<td>Final Exam</td>
<td></td>
</tr>
<tr>
<td>Prof. Maldonado’s section</td>
<td>Wednesday, December 17th, 2008 from 11:50am to 1:40pm</td>
</tr>
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<td>Prof. Treinen’s section</td>
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</tbody>
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Other Items: Methods from class must be worked out in detail for credit on homework and exams. Academic dishonesty in any form will not be tolerated; tests and individual projects are to be only the work of the individual. Absolutely no cell phones are to be used in class. Using a cell phone during a test will be considered academic dishonesty.

We hope that everyone has a good semester. If you have a question during class you are encouraged to ask it. Participation makes for a better learning environment. If you have a question outside of class feel free to come by for the office hours.