

Instructor: Dr. Jeffrey Stuart, Mathematics Department, Morken Center Room 253. (253) 535-7403
 jeffrey.stuart@plu.edu . Course materials can be reached via my web page: www.plu.edu/~stuartjl/ .

Time: TuTh 9:55–11:40 PM Morken Center Room 214.

Office Hours: MWF 10:00–11:00, M 3:30-5:00, Thurs 3:00-5:00. I am also available throughout the week, when not in class or at committee meetings, for brief appointments – phone or email me.

Textbook: *Linear Algebra - A Geometric Approach*, SECOND EDITION by Theodore Shifrin and Malcolm Adams.

Material: Chapters 1 - 4 with selected sections from Chapters 5 and 6 as time permits.

Linear algebra in general, and matrices, vectors and vector spaces in particular, play a central role in many areas of both pure and applied mathematics. The ideas of linear algebra often provide the conceptual framework from which more sophisticated techniques are developed in more advanced courses. Matrix theory is a fundamental tool in numerical analysis and statistics, as well as in many subjects that require the organized modeling of data: econometrics, physics, engineering, sociology,... This course is devoted to developing both the computational and theoretical ideas at the heart of linear algebra, including matrix and vector arithmetic and the fundamental concepts associated with vector spaces. Definitions, theorems and proofs are a fundamental aspect of this material.

Prerequisites and Course Requirements: Enrollment in this class requires the satisfaction of **all official prerequisites**. You are expected to regularly READ the textbook carefully and thoroughly, to THINK rather than merely compute, and to WRITE OUT THOUGHTFUL EXPLANATIONS rather than merely report numerical answers. The contents of this course cannot be learned for you, so you must always maintain the attitude that you are the person most responsible for your education. In particular, your success depends on your diligent and timely attention to all of the homework, which includes carefully reading the text, reviewing your notes, studying for exams, doing the labs and assignments, memorizing basic facts and terminology, and using offices hours as needed. **Successful students typically spend AT LEAST SIX HOURS PER WEEK OUTSIDE OF LECTURES on this course.** If you do not commit the required time to this course, and if you do not carefully memorize the basic facts, formulae and rules, your chances of passing the course are low.

Grading: There will be regular homework assignments, two in-class exams and a comprehensive final exam. These will contribute toward the grade as follows.

Assignments	35%
2 Exams	45%
Final Exam	20%.

Course grades will be determined using the following nominal grading scale:

A	90 – 100%
B	80 – 89%
C	70 – 79%
C-	65 – 69%
D	50 – 64%
E	Below 50%

I reserve the right to assign A-,B+,B- and C+ grades for grades that are close to the listed percentage cutoffs.

Assignments: The assignments need NOT be typed, but they must be legible, and written in coherent, grammatically correct English. The assignments will often involve difficult problems that will require both sustained effort and a period of reflection. The homework may involve material not covered in the lectures. You are encouraged to discuss the homework with your classmates and with the instructor during office hours or via e-mail. You are requested not to ask for assistance on the homework from other faculty members. If you work with other students please be sure that you are not merely copying their work. If the instructor

sees work on several papers that he believes is copied from a single source, he will reduce the scores on all of the offending papers. The more of the work that you do for yourself, the more successful you will be on the exams, and the more that you will gain from this course.

Some of the homework assignments may involve the use of the computer software package MATLAB, which is on the machines in Morken. You will be given instructions on how to use this software, I do NOT expect that you already know how to use it.

Remember: **If you can't explain it, you don't understand it.** Mathematics must be communicated to be useful. When writing out explanations, proofs and solutions, do not write for the instructor, write for a classmate who needs help understanding the material. What you write is all that the instructor will see, so write what you mean and be complete.

Finally, homework consists not just of doing assigned problems, but also of reading the text carefully in a timely manner; of reviewing your notes and filling in any gaps before the next lecture; of memorizing definitions and key results; of maintaining a glossary of key terminology; and of regularly reviewing previously covered material.

Late Assignments: Assignments are to be ready at the start of class on the date that they are due. I realize that you have a life that includes more than this one class, and that at times other matters will take priority over the completion of your work in this course. Consequently, each student receives FIVE "Late Days" for the semester and ONE homework drop grade. An assignment becomes one day late if it is not ready to be turned in at the time that it is collected. It remains one day late until the start of the next class meeting, when it becomes two days late if it has not been turned in. An assignment that is never turned in does not use any late days. **I will not accept any homework that is more than one calendar week late. Exceptions to this rule will be only made for those who have been in a coma for the entire week, have been trapped overseas by terrorists, or who have some similarly amazing excuse.**

Exams: The in-class exams and the final exam will be closed book exams, taken without notes of any kind. All of the exams will involve both computation and explanation. You will be expected to memorize and understand the definitions, key examples, algorithms, theorems and explanations emphasized by the instructor. The exam dates will be announced at least one full week in advance. Be aware that there may be an extra credit, in-class or take-home exam supplement on the class day following an exam. There may be no opportunity to make up missed extra credit, in-class work, and there may be no extensions or late days on any take-home work based on an exam. Some exams may involve group work; this will be announced in advance by the instructor.

If you miss one exam for legitimate reasons (as determined by the instructor), some accommodation will be made. At the discretion of the instructor, this might consist of a written or oral make-up exam, or an adjustment based on the final examination. If you miss a second exam, you will receive a zero for that grade except under the most remarkable circumstances.

The final exam for this course will be comprehensive, and is scheduled for 10:00 – 11:50 AM on Thursday, May 26th.

Attendance: Attendance in class is *strongly recommended* but not required by the instructor. If your financial aid is contingent on attending the class, then you must attend. If you chronically miss class, arrive late and/or leave early, or *fail to be an active participant in class*, then you must expect that to be a consideration in assessing the validity of excuses for missed exams, and in assigning your course grade if you are on the borderline. Roll can be taken whenever the instructor chooses to do so.

Each student is responsible for immediately notifying the instructor of any condition that might impair his or her academic performance. Without timely notice, such difficulties cannot be used later as a basis for requesting make-up exams or reconsideration of grades.

ADA: Students with medically recognized and documented disabilities and who are in need of special accommodation have an obligation to notify the University of their needs. Students in need of accommodation should contact the Office of Disability Support Services (x7206). If you need course adaptations or accommodations because of a disability, if you have emergency medical information, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. It is important to me that we work together to maximize your learning opportunities in this course.

Legalities: Cheating on exams and plagiarism on homework will not be tolerated. Submitting the work of others as your own for the purposes of grading, whether copied from the work of other students or

obtained from the internet is plagiarism. Willingly allowing another to submit your work without attribution for a grade constitutes cheating. Any incidences will be dealt with by assigning a zero to the corresponding exam or homework assignment. Egregious cases may result in dismissal from the course with a failing grade. Also, the departmental chair, appropriate deans and other administrators will be notified. PLU's Academic Integrity Policy and its procedures will be applied; for details, see the PLU website: www.plu.edu/academics/integ.html.

Discourteous and/or disrespectful behavior towards the instructor and/or your classmates will not be tolerated. If your behavior prompts repeated warnings, the appropriate deans will be notified, and efforts will be undertaken to dismiss you from the course with a failing grade.

If you bring a cell phone to an exam, it must stay in your pocket, your purse or a bookbag; alternatively, you may ask me to retain it for you. If I see you handling your cellphone during an exam, I will immediately collect your exam, and you will be given no further time to complete the exam. Texting or surfing during an exam is strictly forbidden; texting or surfing during lectures is strongly discouraged.

Weather Related Closures: In the event that the university administration decides to cancel classes due to extreme weather situations, closure information may be obtained from the Campus Closure Hotline (535-7100) and www.plu.edu as well as from local TV and radio stations. Students are urged to use caution and personal discretion to avoid undue risk when making travel decisions during extreme weather.

This course syllabus and any schedules of lecture topics provide only a general plan for the course; deviations may be necessary. The instructor reserves the right to make any changes he deems necessary.