

**MTH 233 Linear Algebra**  
**TTh 8-9:15 am RLC108**

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Text: *Linear Algebra, 4<sup>th</sup> ed. David Lay. ISBN:0-321-38517-9*

Course Mascot: terrapin

**Course Description**

A computational introduction to linear algebra with applications. A study of linear equations, matrix algebra, Euclidean spaces and subspaces, vector spaces, linear transformations, eigenvalues, eigenvectors, and inner products.

**Prerequisite:** Mathematics 144 or 164

**Course Philosophy**

Mathematics is learned by doing. You will be given many problems to solve both in and out of class. You are encouraged to work with each other and consult the internet, but be sure that the solutions you write up are yours. Exam problems will be similar to these and it will be essential that you know how to do all of the problems from the homework.

**Grading Policies**

Grading Distribution	Percent
Two Examinations at 20% each	40
Final Exam	30
Homework and Activities	30
Total	100

**Grading scale**

Grading Scale in percentages	A	B	C	D
+		(87.5, 90)	(77.5, 80)	(67.5, 70)
	[92.5, 100]	[82.5, 87.5]	[72.5, 77.5]	[62.5, 67.5]
-	[90, 92.5)	[80, 82.5)	[70, 72.5)	[60, 62.5)

**Grade components.**

The grade components are homework (text exercises), tests, and the final examination.

- **Late work.** A written assignment or computer assignment is late if it is not received at the beginning of class on the due date. Late work need not be accepted. Work accepted late may be assessed a penalty. Make-up tests will only be given by arrangement with the instructor for reasons of documented emergency.
- **Accuracy of solutions.** Written assignments and examination questions and problems must be formulated carefully in terms of words and symbols used in the course. Credit is

- determined by the degree to which answers and solutions respond to the specific question or problem stated. Maximize your credit by learning the language and symbols of the course.
- **Written Assignments.** Collected assignments must be prepared in a style suitable for grading. The following guidelines are used to determine credit:
    - the organization must be easy to follow
    - the work must be legible
    - complete solutions must be written for problems (not just answers); answers must be clearly marked
    - use complete sentences to answer questions
  - **Examinations and the Final Examination.** Examinations and the Final Examination will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class.

No examination shall be missed without prior consent or a well documented emergency beyond your control. A score of zero will be assigned for an examination that is missed without prior consent or a well documented emergency beyond your control.

The examination schedule is included in the daily schedule. This instructor does not intend to accept excuses such as poor communication with parents, benefactors, surf team sponsors and/or travel agents.

### **Attendance Policy**

After you miss the equivalent of 10% of the classes and labs, you will be warned of impending de-enrollment. If you miss the equivalent of 20% of the classes, you may be de-enrolled or given a course grade of "F" for the semester. Tardiness may result in being marked absent.

Attendance is expected at each class section. In the event of an absence you are responsible for the material covered in class and the assignments given that day. See the Point Loma Nazarene University Catalog for a statement of the university's policy with respect to attendance:

Regular and punctual attendance at all classes in which a student is registered is considered essential to optimum academic achievement. Therefore, regular attendance and participation in each course are minimal requirements to be met. There are no allowed or excused absences except when absences are necessitated by certain university-sponsored activities and are approved in writing by the Provost. Whenever the number of accumulated absences in a class, for any cause, exceeds ten percent of the total number of class meetings, the faculty member has the option of filing a written report to the Vice Provost for Academic Administration which may result in de-enrollment, pending any resolution of the excessive absences between the faculty member and the student. ... If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of W or WF (no grade). There are no refunds for courses where a de-enrollment was processed. (See the Catalog for full text)

### **Class Enrollment**

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

### **Academic Accommodations**

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At

Point Loma Nazarene University, students requesting academic accommodations must file documentation during the first two weeks of the semester with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files the documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. This policy assists the University in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990 (ADA), and ADA amendments Act of 2008, all of which prohibit discrimination against students with disabilities and guarantees all qualified students equal access to and benefits of PLNU programs and activities.

Students in need of academic accommodations as defined by the laws listed above, must discuss options with the professor within the first two weeks of class, and must complete the documentation process with the DRC within the first four weeks of class.

### **Academic Honesty**

The Point Loma Nazarene University community holds the highest standards of honesty and integrity in all aspects of university life. Academic honesty and integrity are strong values among faculty and students alike. Any violation of the university's commitment is a serious affront to the very nature of Point Loma's mission and purpose.

Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations. For more details on PLNU's policy go to:

<http://www.pointloma.edu/experience/academics/catalogs/undergraduate-catalog/point-loma-education/academic-policies>

A student who is caught cheating on any item of work will receive a zero on that item and may receive an "F" for the semester. See the PLNU Catalog for a further explanation of the PLNU procedures for academic dishonesty.

### **Final Exam: Date and Time**

The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. Only in the case that a student is required to take three exams during the same day of finals week is an instructor authorized to change the exam date and time for that particular student.

**The Final Exam is a Comprehensive Examination.**

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Week	Tuesday	Thursday
1	1/14 <b>No Class</b>	1/16 1.1 Systems of Equations
2	1/21 1.2 Row Red.	1/23 1.3 Vector Eq.
3	1/28 1.4 Matrix Eq.	1/30 1.5 Solution Sets
4	2/4 1.6 Applications	2/6 1.7 Linear Indep.
5	2/11 1.8 Intro to Linear Trans.	2/13 1.9 Matrix of Linear Trans.
6	2/18 1.10 Linear Models	2/20 Exam 1
7	2/25 2.1 Matrix Ops.	2/27 2.2 The INVERSE...
8	3/4 2.3 Char. Of Inv. Matrices	3/6 2.4 Partitioned Matrices
9	3/18 2.5 Matrix Fact.	3/20 2.6-2.7 Applications
10	3/25 3.1 and 3.2 Determinants	3/27 4.1 Vector spaces
11	4/1 4.2 More spaces	4/3 4.3 Bases
12	4/8 4.4 Coordinate Syst.	4/10 <b>Exam 2</b>
13	4/15 4.5 Dim of a Space	4/17 <b>Easter Recess</b>
14	4/22 4.6 Rank	4/24 5.1 and 5.2 Eigenvalues
15	4/29 5.3 Diagonalization	5/1 Review
Finals Week	5/6	5/8 <b>Final 7:30-10 am</b>