

<u>Instructor</u>	Dr. Mark D. Jacobson
<u>Office Hours</u>	Monday and Tuesday: 10:30 – 12:00 p.m.; Thursday: 0920 – 1020 a.m. or by appointment
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<u>Text</u>	<i>Linear Algebra and its Applications</i> , 5 th Edition, David C. Lay, Steven R. Lay, and Judi J. McDonald, Pearson, 2016, Bundled with MyLab and Study Guide. ISBN: 9780321989925
<u>Catalog Description</u>	<p>M 333, 4 credits.</p> <p>Prerequisite: M 172 or equivalent.</p> <p>Covers linear systems and matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, and orthogonality. Exact topics may vary year to year.</p>
<u>Course Description</u>	Linear Algebra deals with concepts and computations of linear algebra. The course starts with a thorough study of linear equations, matrix algebra and determinants. Then we study the fundamental concepts of vector spaces, eigenvalues, eigenvectors, orthogonality and least squares.
<u>Learning Outcomes</u>	<ol style="list-style-type: none">1. Knowledge of the formal development of the theory of abstract vector spaces, their subspaces, and dimension.2. Ability to deal with linear transformations on various spaces and their matrix representations in different bases.3. Understanding of inner product spaces and normed spaces, including different norms of linear transformations.4. Understanding of the theoretical basis for selected applied techniques, as exemplified by the least squares approximation and the singular value decomposition.5. Ability to explore and prove simple conjectures and comprehend moderately complex proofs in the above areas.

Course Outline

Chapter 1 (Sections 1 – 9, skip 6): Linear Equations in Linear Algebra

Chapter 2 (Sections 1 – 5): Matrix Algebra

Chapter 3 (All Sections): Determinants

Chapter 4 (Sections 1 – 7): Vector Spaces

Chapter 5 (Sections 1 – 5): Eigenvalues and Eigenvectors

Chapter 6 (Sections 1 – 6): Orthogonality and Least Squares

Assessment

Progress by the student will be assessed primarily through Mathematica and online homework and online exams. The Mathematica and online homework are designed to serve as a medium of practice of the concepts covered in the daily class lectures while the exams are to assess the mastery of the material by the student. The purpose of all forms of assessment is to measure mastery of material as well as encourage development of problem solving and critical thinking skills.

Each chapter will have written and online homework and an online exam. The following weights are given:

<u>Item</u>	<u>Percentage</u>
6 Online Exams	70 %
6 MyMathLab Homework	15 %
<u>6 Mathematica Homework</u>	<u>15 %</u>
Total	100 %

There is no FINAL EXAM!! No Incompletes will be given unless the requirements as per student handbook are met. ALL work must be completed no later than the DUE DATES. Work turned in after the DUE DATES will receive a 0.

IMPORTANT! You cannot make up missed exams. Therefore, if you will be out of town for sports or work or whatever and you see that a deadline is coming, you **MUST** consult with the instructor to determine if you can take the exam before you leave. You must plan your schedule; I cannot do that for you. You will be held responsible for taking your exams on or before the deadlines set for the four exams. I will accept no reasons for missed exams.

<u>Percentage</u>	<u>Grade</u>	<u>Points</u>
100 – 93 %	A	4.0
92 – 90 %	A-	3.7
89 – 87 %	B+	3.3
86 – 83 %	B	3.0
82 – 80 %	B-	2.7
79 – 77 %	C+	2.3
76 – 73 %	C	2.0
72 – 70 %	C-	1.7
69 – 67 %	D+	1.3
66 – 63 %	D	1.0
62 – 60 %	D-	0.7
Below 60%	F	0.0

Graded Internet Exams and Online Homework in MyMathLab

Registration: You will access the internet homework and exams by first registering at the following site: <http://pearsonmylabandmastering.com/>. Registration instructions are shown on page 5.

Note: If you have only the textbook, you can purchase a Student Access Code online as shown in the registration process for about \$100.

NOTE: If you have technical problems call: **1-800-677-6337**.

Online homework will be taken at the above MyMathLab website. Click on the **Homework** button located on the left-hand-side.

Note: These graded homework problems can be taken an unlimited number of times. Your work is saved automatically when you leave the homework site.

Mathematica Homework will be uploaded in D2L in the **Assignments** folder.

Download Mathematica software for free: <http://www.msubillings.edu/it/is/software/wolfram/> .

Exams: All Exams will be online in MyMathLab.

Click on the **Quizzes & Tests** button located on the left-hand-side to access an exam.

Gradebook: Your homework and exam grades can be viewed by clicking on the **GRADEBOOK** button, located below the **Study Plan** button.

Calendar: The calendar for this course can be viewed first clicking on the **Course Home** button, located at the top of the left-hand-side. All the important dates for the homework and exams are shown here.

Calculators

A graphing calculator like the TI-83 Plus, TI-84, etc. is highly recommended. These calculators have matrix capabilities which are used in this course. Finally, the TI-89, TI-92 or TI-200 have an easy to use equation solver and matrix capabilities. These calculators (excluding the TI-200) are available for your use at the Academic Support Center. Just leave ID at the front desk and you can use them in the building for as long as you wish.

Web Help

For additional math help, go to the following site:

http://www.msubillings.edu/asc/algebra_helps.htm

Attendance

In a class such as this one – which is structured on sequentially learned skills – attendance is important! You are responsible for all material covered in each class – whether you are there or not. In addition, any quizzes or ‘minute papers’ that are given on a particular day will not be available to you on a later date unless alternate plans have been made ahead of time.

Incompletes

An Incomplete (grade) is given only when students have been in attendance for at least three-fourths of the semester but have been prevented by circumstances beyond their control from completing all the requirements of the course. The student must provide adequate evidence to the instructor as to the reason why they were unable to complete the requirements of the course. An Incomplete must be made up within one calendar year or the grade will revert to an F. In general, to make up an incomplete for this class, the student must retake the course and will be required to submit all material required by the new instructor of a regular student.

Plagiarism / Cheating

Neither will be tolerated in this class. Stealing others work – with or without their permission – is not acceptable for the simple reason that it blocks your learning. It will catch up with you eventually. You are expected to come out of any course with a knowledge base. If you do not have it, your success later may be in jeopardy. I cannot guarantee that I will catch all acts of dishonesty. However, for those I do catch, the first instance is a zero on that assignment and the second is an F for the course. Don’t do it! You have more integrity than that. Refer also to page 134 of your student handbook.

Cell phones, et el

I expect all modes of electronic communication as well as games, etc. to be off during class time. If there is some reason that you must be available for a call, please talk to me about it.

On-campus evacuations

There will be times when you will be exiting your classroom due to evacuation drills or a real emergency. Keep two things in mind:

- Treat all instances seriously!
- **TAKE ALL PERSONAL BELONGINGS WITH YOU.** Any that you leave behind may be confiscated for several days!!

Phone numbers

Admissions and records (657) 2158

Campus police

(657) 2147

If you have a physical, learning, or psychological disability and require accommodations, please let me know as soon as possible. You have the responsibility to identify yourself, request appropriate accommodations and reasonable modifications. You are encouraged to contact Disability Support Services in College of Education Room 135, (406) 657-2283 (Phone), (406) 545-2518 (Video Phone).

Student Registration Instructions

To register for M 333-001 Spring 2019 :

1. Go to www.pearson.com/mylab .
2. Under Register, select **Student** .
3. Confirm you have the information needed, then select **OK! Register now** .
4. Enter your instructor's course ID: jacobson69607 , and **Continue** .
5. Enter your existing Pearson account **username** and **password** to **Sign In** .
You have an account if you have ever used a MyLab or Mastering product.
 - » If you don't have an account, select **Create** and complete the required fields.
6. Select an access option.
 - » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
 - » If available for your course,
 - Buy access using a credit card or PayPal.
 - Get temporary access.
7. From the You're Done! page, select **Go To My Courses** .
8. On the My Courses page, select the course name **M 333-001 Spring 2019** to start your work.

To sign in later:

1. Go to www.pearson.com/mylab .
2. Select **Sign In** .
3. Enter your Pearson account **username** and **password**, and **Sign In** .
4. Select the course name **M 333-001 Spring 2019** to start your work.

To upgrade temporary access to full access:

1. Go to www.pearson.com/mylab .
2. Select **Sign In** .
3. Enter your Pearson account **username** and **password**, and **Sign In** .
4. Select **Upgrade access** for **M 333-001 Spring 2019** .
5. Enter an access code or buy access with a credit card or PayPal.

Mathematica Homework for M 333, Linear Algebra

The Data Files for this Homework are accessed by the MyMathLab left-hand link:

Tools for Success -> Data Files -> Mathematica . Saved these Data Files on your computer.

The Technology Manual for using Mathematica is accessed by the MyMathLab left-hand link:

Tools for Success -> Getting Started with Technology -> Getting Started with Mathematica

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5.1	38, 39
5.2	14, 17, 30
5.3	34, 35
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5.5	2, 18
6.1	2, 11, 13, 15, 17, 34
6.2	5, 6, 14, 16, 20, 22, 35, 36
6.3	6, 7, 12, 13, 15, 16, 17, 25, 26
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6.5	3, 6, 7, 12, 16, 25
6.6	2, 8, 11, 12