Math 342—Spring 2018—CRN 33459

Course Information

Instructor	Robert Lipshitz
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Office	Fenton 303
Office Hours	Wed. 1:00–2:30, Fri. 10:00–11:30. Subject to change.

Course Prerequisites	Math 341 (first quarter linear algebra).
Course Requirements	There will be online homework, via WebWork, due roughly once a week, initially on Mondays, and written homework due roughly once a week, initially also on Mondays. There will be three in-class midterm exams and a final exam. There *will* be new material covered and a homework assignment due during dead week (the last week of classes).
Test Dates	*Midterm 0:* April 4. *Midterm 1*: April 23. *Midterm 2*: May 11. Subject to change if necessary. *Final exam*: per Registrar's schedule. Generally, there will *not* be makeup exams. If you are unable to attend the exam, contact me in advance to discuss whether other arrangements are possible. If you are unable to attend an exam because of an emergency, contact me as soon as possible; you will be asked to provide documentation of the emergency.
Grading Policy	Online Homework 10% Written Homework 15% Midterm 0 5% Midterm 1 20% Midterm 2 20% Final Exam 30% The lowest online homework score and lowest written homework score will be dropped, to accommodate illnesses and other unforeseen events. Late homework will not be accepted. Only part of each written homework assignment will be carefully graded (by the grader).
Students with disabilities	The University of Oregon is committed to an inclusive learning environment. If you have a disability which may impact your performance on exams, please contact the Accessible Education Center to discuss appropriate accommodations. If there are other disability-related barriers to your participation in the course, please either discuss them with me directly or consult with the Accessible Education Center.

WebWork Information:

- The WebWork site is `https://webwork2.uoregon.edu/webwork2/Math342-33459/` Log in with your DuckID.

Course Policies:

- Fridays will typically be used for review, and sometimes to catch up on material.
- Cell phones, computers, etc. are not permitted in this class except by instructor's permission. (They don't bother me, but there is strong evidence they distract other students.)
- Calculators and other electronics are not permitted on exams. Notes and the textbook are also not permitted.
- Written homework must be turned in at the beginning of class on the due date. (If you can't make it to class, put it in the mailbox in Fenton before class.) Online homework is due as scheduled on WebWork.
- You may work together on WebWork problems, but should then go back and solve the problems again on your own. Similarly, you are welcome to work on the written homework together, but you must write up your final answers by yourself. Failure to abide by this policy constitutes cheating.
- You are also generally welcome to use any resources you like. However, any resource beyond the textbook that you use for written homework must be cited. This includes electronic resources (including Wikipedia and Google) and human resources (including your classmates). Failure to cite sources constitutes academic misconduct.

Course Resources:

- Textbook: *Linear Algebra and Its Applications* by David Lay, 5th edition.
- We will use Canvas to track grades and post some solutions.
- Course website, with up to date syllabus and assignments:

  `http://pages.uoregon.edu/lipshitz/Teaching/Sp18Ma342.html`

  or or `http://goo.gl/jpEF7x`

Getting Help: I have three office hours a week. Get help as soon as you feel confused.

Course goals: The main goals of this course (learning outcomes) are:

- To develop an understanding of the notion of abstract vector spaces and linear transformations, and how to represent vectors and linear transformations in terms of bases.
- To understand how the matrix for a linear transformation when one changes bases.
- To understand the notion of eigenvalues and eigenvectors and use them to diagonalize matrices (when possible) and understand qualitative and quantiative properties of matrices, linear transformations, differential equations, and difference equations.
- To understand the spectral theorem for symmetric matrices and its application to quadratic forms, and applications of quadratic forms, in turn, to optimization problems.
- To be able to find and exploit orthonormal bases.