Math 342—Spring 2020—CRN 33623

Course Information

Instructor	Robert Lipshitz
e-mail	lipshitz@uoregon.edu
Office Hours	Mon. 12:00–1:00, Wed. 3:00–4:00. 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, typically on Mondays, and written homework due roughly once a week (uploaded to Canvas), initially also on Mondays. The current plan is to have three in-class midterm exams and a take-home final exam, but this is subject to change.

There *will* be new material covered and a homework assignment due during dead week (the last week of classes).

Test Dates

Midterm 0: April 1. *Midterm 1*: April 20. *Midterm 2*: May 8. 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, if the situation is not an emergency—to discuss other arrangements.

Grading Policy

Written Homework	20%
WebWorks Homework	10%
Class Participation	5%
Midterm 0	5%
Midterm 1	15%
Midterm 2	15%
Final Exam	30%

The lowest WebWorks homework score and lowest written homework score will be dropped, to accommodate illnesses and other unforeseen events. Late homework will typically not be accepted. Only part of each written homework assignment will be graded carefully (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://webwork.uoregon.edu/webwork2/Math342-33623/` Log in with your DuckID.

Course Policies:

- Fridays will typically be used for review, and sometimes to catch up on material.
- Written homework must be uploaded to Canvas by the beginning of class on the due date. WebWorks homework is due as scheduled on WebWorks.
- You may work together on WebWorks 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, submit and return homework, post solutions, for discussions / questions, and to post videos of the lectures.
- Lectures will be streamed live using Zoom. Students are expected to be active participants in the Zoom lectures and/or on the Canvas discussion and chat forums.
- Lecture notes will be available in a OneNote "class notebook".
- The course website, with up to date syllabus, assignments, and details of the online learning format, is here:

  `http://pages.uoregon.edu/lipshitz/Teaching/Sp20Ma342.html`

  or 

Getting Help: I have office hours every week. Get help as soon as you feel confused. You can also post questions to Canvas.

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.