

Instructor: Ildar Gabitov

[[email](#)]

1 Class Format and Schedule

IN-PERSON, EDUCATION ROOM 310

TUESDAYS & THURSDAYS
12:30pm – 1:45pm

MIDTERM 1: FEBRUARY 3

MIDTERM 2: MARCH 3

MIDTERM 3: APRIL 14

FINAL EXAM: THR MAY TBD, TBD

Up-to-date information concerning this class will be announced in the classroom, posted on its [D2L](#) website, or communicated via email. Do not hesitate to [email me](#) if you have any related questions or concerns. I will do my best to respond within 24 hours during the regular week days.

OFFICE HOURS

TUE, 2:00–3:00pm: [MATH 722](#)

WED, 11am–noon: [VIA ZOOM](#)

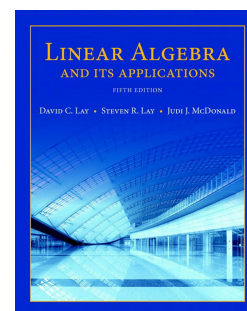
THR, 2:00–3:00pm: [MATH 722](#)

Attendance Policy. As we enter the Spring semester, the health and well-being of everyone in this class is the highest priority. Accordingly, we are all required to follow the university guidelines on COVID-19 mitigation. Please visit www.covid19.arizona.edu for the latest guidance. With that in mind, please, be aware that this section (04) of MATH313 is scheduled to be conducted in-person, and thus consistent in-person attendance is required (a few justified absences will be tolerated). If you expect to be unable to consistently attend this class in person, you may consider switching to the online section.

Withdrawals and Incompletes. You may withdraw from the course without records through January 25th 2022. Additional information may be found in the [dates and deadlines calendar](#). Refer to the Office of the Registrar for policies regarding the [incomplete \(I\) grades](#) and [complete withdrawals](#).

2 Textbook

This course closely follows “[Linear Algebra and Its Applications](#)” by Lay, Lay, and McDonald. Make sure you have access to the **5th** edition of the book, as most of the homework problems will be assigned from it. Please, be aware that the you are provided with an “inclusive access” version of the ebook via D2L. If you do not wish to purchase it, you **must opt-out by January 25th**.



3 Description/Objectives

In this class we study the elements of linear algebra. The tentative schedule of topics covered on specific dates and the corresponding book sections are presented below.

WEEK OF	SUBJECT	BOOK
JAN 13	linear systems, row reduction	1.1-2
18, 20	vector and matrix equations, solution sets	1.3-5
25, 27	linear independence, linear transformations	1.7-9
FEB 1 [3]	applications, review [MIDTERM 1]	
8, 10	matrix algebra, matrix inverses	2.1-3
15, 17	matrix factorizations, fundamental matrix subspaces, rank, nullity	2.5, 8-9
22, 24	determinants and volumes	3.1-3
MAR 1 [3]	review [MIDTERM 2]	
8, 10	SPRING BREAK	
15, 17	vector spaces, bases, dimensions	4.1-3
22, 24	coordinate systems, change of basis	4.4-5,7
29, 31	eigenvalues, eigenvectors, diagonalization	5.1-3
APR 5, 7	complex eigenvalues, review	5.5
12 [14]	inner product, orthogonality [MIDTERM 3]	6.1-2
19, 21	Gram-Schmidt process, least squares	6.3-5,7
26, 28	symmetric matrices and quadratic forms	7.1-2
MAY 3	singular values, review	7.4

IN THE OUTCOME OF THE COURSE THE STUDENTS ARE EXPECTED TO BE ABLE TO

Formulate and explain the definitions and theorems studied in this class

Solve (with detailed explanations) problems from the textbook

Outline applications and limitations of the studied formulas and approximations

Substantiate the reasoning behind theoretical constructions, illustrate the differences and relationships between various concepts learned in the class

4 Grading and Assessment

Homework problems will be assigned regularly (about once per week). I will select some of the problems for grading and feedback. This will constitute 20% of your overall grade. Part of the homework will require writing your own explanations for select topics studied in class. **All homework must be submitted electronically in PDF via the D2L website.**

Tests: three midterms (15, 20, 20% of the total grade each) will take place **in-person** during the regular class hours (see p.1 for the schedule). The **final test is scheduled on Thursday May 12th from 8am to 10am** and will contribute the remaining 25% into your overall score.

Bonus points may be awarded for participation in various in-class activities and solving extra problems. These points will be added on top of your regular score in the “homework” category.

Your overall grade will be calculated using the standard grading scheme: 90% or more for A, 80% for B, 70% for C, 60% for D, with weights for each assessment category as specified above. There will be no curving, but the borderline cases may be considered for upgrading if the student had demonstrated consistent effort towards learning during the entire semester.

Grading disputes must be addressed within one week after the corresponding assignment or exam had been graded. You must provide a valid reason (e.g. dean’s excuse) if you have to miss homework deadlines or exams to be able to reschedule them.

5 University-wide Policies and Additional Resources

Attendance:

- If you feel sick, or may have been in contact with someone who is infectious, stay home. Except for seeking medical care, avoid contact with others and do not travel.
- Notify your instructors if you will be missing an in person or online course.
- [Campus Health](#) is testing for COVID-19. Please call (520) 621-9202 before you visit in person.
- Visit the [UArizona COVID-19](#) page for regular updates.
- Students who need to miss more than one week of classes in any one semester must provide a doctor’s note of explanation to DOS-deanofstudents@email.arizona.edu.

Class Recordings: For lecture recordings, which are used at the discretion of the instructor, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies are subject to suspension or civil action.

Accessibility and Accommodations: At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, <https://drc.arizona.edu>) to establish reasonable accommodations.

Classroom Behavior: To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Additional University-wide policies are available [here](#).