

# MATH 2318-08 (Spring 2025)

## Linear Algebra

**Instructor:** Dr. Nicolas Charon, ✉ [ncharon@central.uh.edu](mailto:ncharon@central.uh.edu)

**Office:** PGH 669.

**Semester dates:** 01/13/2025 - 05/08/2025.

**Class time & location:** Tu-Th 4:00pm-5:30pm in MH 110.

**Office hours:** M 2:30pm-3:30pm, Th 11am-12pm, or by appointment.

**Information contained in this syllabus is provisional and subject to future changes. Students are expected to check Canvas regularly for updates.**

### 1 Prerequisites

Credit for or concurrent enrollment in MATH 2414 (formerly, MATH 1432).

### 2 Textbook

This course will be based on the following textbook:

**Linear Algebra and Its Applications** by David C. Lay, Steven R. Lay & Judi J. McDonald, Pearson, 6th Edition, 2020 (ISBN-13: 9780136880929).

*You will not be required to purchase this textbook. All material discussed in class will be provided and accessible on Canvas. Nonetheless, note that it may be helpful to go over the material in the book after or before it is discussed in class.*

### 3 Course Description

Linear Algebra is arguably one of the most fundamental area of Maths, as it provides the underlying framework for many of the more advanced topics within mathematics and is rich in applications to many other disciplines such as computer science, engineering, economics... For many of you this is the first course to begin bridging the gap between concrete computations and abstract reasoning. Later in your career, computers will do the calculations, but you will have to choose the calculations, know how to interpret the results, and then explain the results to others. Understanding the notions of vector spaces, linear (in)dependence, dimension, and linear transformations will help you make sense of matrix manipulations at a deeper level, clarifying the underlying structure. A key aim of this course is that you will not only be equipped with a computational ability but with the ability to use these notions in their natural scientific contexts, and with an appreciation of their mathematical beauty and power.

## 4 Technical equipment needed

Students will need the following equipment to be able to follow classes: • internet connection, • ability to log in to Canvas for online assignments, • ability to access MS Teams for communications relevant for this class, and • scanner or certain smartphone apps so that you can submit your homework as a PDF file. For technical problems, please contact UH IT Help Desk; your instructor might not be able to help with technical issues. Students that do not have access to the required equipment can find the needed computer equipment in the library. Additional information and technical support is available at <https://www.uh.edu/infotech>.

## 5 Course evaluation

Students will be evaluated through homework assignments, two midterm exams, and one cumulative final. For any assignment or test, illegible answers will be assumed to be incorrect and will receive no credit. The following information is only provisional and subject to changes.

**Homeworks.** Homeworks will be given on a roughly weekly basis. There should be a total of approximately 10 homeworks which will consist on “pencil and paper” exercises as well as programming problems (in MATLAB <https://www.mathworks.com/products/matlab.html>). Digital copies of your completed homework assignments have to be uploaded on Canvas at the specified deadline. In fairness to fellow students and graders, late homework will not be accepted. However, the final HW grade for the course will be calculated **by dropping your lowest two homework grades**, including possible missed assignments.

**Exams.** During the semester there will be two midterm exams (around 1 hour each) and one (cumulative) final exam (2 hours). The exams will contain a mixture of computational and conceptual problems. Some of them will resemble problems you have seen in your homework assignments or in class, while some may be brand new to you. Exams shall be worked on independently and without the use of your textbook, homework, and class notes (closed book). Illegible answers will be assumed to be incorrect and will receive no credit. There will be no makeup exams. Exceptions are possible only in the case of extreme circumstances, such as a documented, serious illness. In the event that a student cannot take an exam on the day it is held, the student needs to speak to me in advance.

**Final grade.** The final grade for the course will be calculated as a weighted average of the grades obtained for the homeworks and exams with the following percentages:

- Homeworks: 30%.
- Midterm 1: 20%.
- Midterm 2: 20%.
- Final exam: 30%.

## 6 Dissemination of Course Material

The materials provided by the instructor in this course are for **the use of the students enrolled in the course only**. Course materials and course recordings (if permission was warranted) may not be further disseminated without instructor permission. This includes sharing content to commercial course material suppliers or public domain platforms. Students are also prohibited from sharing materials derived from the instructor’s content (e.g., a student’s lecture notes).

## 7 Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Justin Dart, Jr. Student Accessibility Center](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

## 8 Academic Honesty/Honor Code

High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees. All UH community members are expected to contribute to an atmosphere of the highest possible ethical standards. Maintaining such an atmosphere requires that any instances of academic dishonesty be recognized and addressed. The [UH Academic Honesty Policy](#) is designed to handle those instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy. Posting answers for homework assignments online (at group chats or other online tools) is considered an academic honesty violation. Students are expected to know the difference between “getting and/or giving help on a problem” and “getting/giving answers to a problem.” If a student is caught sharing answers (in person or online), they might be reported to the departmental hearing officer for an academic honesty violation. If a student becomes aware of cheating or any other violations; that student is responsible for informing the instructor.

## 9 Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Undergraduate Excused Absence Policy](#) and [Graduate Excused Absence Policy](#) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to military service, religious holy days, pregnancy and related conditions, and disability.

## 10 Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston is committed to providing an academic environment and educational programs that are accessible for its students. Any student with a disability who is experiencing barriers to learning, assessment or participation is encouraged to contact the [Justin Dart, Jr. Student Accessibility Center](#) (Dart Center) to learn more about academic accommodations and support

that may be available to them. Students seeking academic accommodations will need to register with the Dart Center as soon as possible to ensure timely implementation of approved accommodations. Please contact the Dart Center by visiting the website: <https://uh.edu/accessibility/accommodations/> (713) 743-5400, or emailing [jdcenter@Central.UH.EDU](mailto:jdcenter@Central.UH.EDU).

The [Student Health Center](#) offers a [Psychiatry Clinic](#) for enrolled UH students. Call 713-743-5149 during clinic hours, Monday through Friday 8 a.m. - 4:30 p.m. to schedule an appointment.

The [A.D. Bruce Religion Center](#) offers spiritual support and a variety of programs centered on well-being.

The [Center for Student Advocacy and Community](#) (CSAC) is where you can go if you need help but don't know where to start. CSAC is a "home away from home" and serves as a [resource hub](#) to help you get the resources needed to support academic and personal success. Through our [Cougar Cupboard](#), all students can get up to 30 lbs of FREE groceries a week. Additionally, we provide 1:1 appointments to get you connected to on- and off-campus resources related to essential needs, safety and advocacy, and more. The [Cougar Closet](#) is a registered student organization advised by our office and offers free clothes to students so that all Coogs can feel good in their fit. We also host a series of cultural and community-based events that fosters social connection and helps the cougar community come closer together. Visit the CSAC homepage or follow us on Instagram: [@uh\\$\\_\\$CSAC](#) and [@uhcupbrd](#). YOU belong here.

## 11 Women and Gender Resource Center

The mission of the [WGRC](#) is to advance the University of Houston and promote the success of all students, faculty, and staff through educating, empowering, and supporting the UH community. The WGRC suite is open to you. Stop by the office for a study space, to take a break, grab a snack, or check out one of the WGRC programs or resources. Stop by Student Center South room B12 (Basement floor near Starbucks and down the hall from Creation Station) from 9 am to 5 pm Monday through Friday.

## 12 Mental Health and Wellness Resources

The University of Houston has a number of resources to support students' mental health and overall wellness, including [CoogsCARE](#) and the [UH Go App](#). UH [Counseling and Psychological Services](#) (CAPS) offers 24/7 mental health support for all students, addressing various concerns like stress, college adjustment and sadness. CAPS provides individual and couples counseling, group therapy, workshops and connections to other support services on and off-campus. For assistance visit [uh.edu/caps](https://uh.edu/caps), call 713-743-5454, or visit a [Let's Talk](#) location in-person or virtually. Let's Talk are daily, informal confidential consultations with CAPS therapists where no appointment or paperwork is needed.

### Need Support Now?

If you or someone you know is struggling or in crisis, help is available. Call CAPS crisis support 24/7 at 713-743-5454, or the National Suicide and Crisis Lifeline: call or text 988, or chat <https://988lifeline.org/>.

## 13 Religious holidays

Students whose religious beliefs prohibit class attendance or the completion of specific assignments on designated dates may obtain an excused absence. To do so, please make a written request for an excused absence and submit it to your instructor as soon as possible, to allow the instructor to make arrangements. For more information, see the Student Handbook (<http://catalog.uh.edu/index.php>).

## 14 Title IX/Sexual Misconduct

Per the UHS Sexual Misconduct Policy, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and state law and must report incidents of sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office. Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the Title IX website at <https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/>.

## 15 Security Escorts and Cougar Ride

UHPD continually works with the University community to make the campus a safe place to learn, work, and live. The security escort service is designed for the community members who have safety concerns and would like to have a Security Officer walk with them, for their safety, as they make their way across campus. Based on availability either a UHPD Security Officer or Police Officer will escort students, faculty, and staff to locations beginning and ending on campus. If you feel that you need a Security Officer to walk with you for your safety, please call 713-743-3333. Arrangements may be made for special needs

Parking and Transportation Services also offers a late-night, on-demand shuttle service called Cougar Ride that provides rides to and from all on-campus shuttle stops, as well as the MD Anderson Library, Cougar Village/Moody Towers and the UH Technology Bridge. Rides can be requested through the UH Go app. Days and hours of operation can be found at <https://uh.edu/parking/cougar-ride/>.