

**Course:** MATH 3423 — Advanced Linear Algebra & Optimization

**CRN:** 24815

**Room:** OMB S618

**Time:** MW 8:00 am - 9:45 am

**Instructor:** Randy R. Davila

**Email:** [DavilaR@uhd.edu](mailto:DavilaR@uhd.edu)

**Phone:** 713 - 221 - 5872

**Office:** S727

**Office Hours:** TBA

**Textbook:** Trefethen, Lloyd N. and Bau, David. *Numerical Linear Algebra*, Philadelphia: Society for Industrial and Applied Mathematics, 1997, print.

**Link:** <http://ebooks.bharathuniv.ac.in/gdlc1/gdlc1/Mathematics%20Books/numerical-linear-algebra-trefethenbau.pdf>

**Textbook:** Strang, Gilbert. *Linear Algebra and its Applications* (any addition will be good).

**Link:** <http://www.math.hcmus.edu.vn/~bxthang/Linear%20algebra%20and%20its%20applications.pdf>

**Course Description:** This course covers both theoretical and numerical topics from advanced linear algebra and optimization with an emphasis on application. Topics include, but are not limited to: matrix factorizations, eigenvalues, iterative methods, linear programming, descent methods, and neural networks. For applications we will use the Julia programming language: <https://julialang.org>

**Grading Policy:** You will need to purchase a 3-ring binder. This binder will be used to organize your coursework and keep track of your grade. You will need to divide this binder into sections (with dividers) for the following:

1. Class notes: 10%
2. Homework: 20%
3. Exam 1: 20%
4. Exam 2: 20%
5. Final Project: 30%

**General University Policies:** All students are subject to UH-Downtown Academic Honesty Policy and to all other university-wide policies and procedures as they are set forth in the UH-Downtown University Catalog and Student Handbook.

**Statement on Reasonable Accommodations:** UH-Downtown complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for students with a disability. In accordance with Section 504 and ADA guidelines, UHD strives to provide reasonable academic/auxiliary aids to students who request and require them. If you believe that you have a documented disability requiring academic adjustments/ auxiliary aids, please contact the Office of Disability Services, One Main St., GSB314, Houston, TX 77002. (Office) 713-221-5078 (Website) [www.uhd.edu/disability/](http://www.uhd.edu/disability/) (Email) [disabilityservices@uhd.edu](mailto:disabilityservices@uhd.edu)