

MATH 2331
Linear Algebra
Fall 2013

- Class:** Tu&Th 4:00pm-5:20pm, AH 104
- Instructor:** Bernhard Bodmann, bgb@math.uh.edu
- Office:** PGH 604; Tu 1-2:30pm, W 10-11:30am
- TAs:** Nicole Leonhard (students' last name A-L), leonhard@math.uh.edu
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- Objectives:** This class serves as an introduction to linear algebra, a subject that originated in the problem of solving systems of linear equations. Today, linear algebra plays a central role in many applications, including internet transmissions, data storage, search engines, medical and seismic imaging, radar and other types of remote sensing, statistics, optimization in micro and macroeconomics, and the approximate, computer-aided solution of differential equations. The students will learn concepts and methods that are essential for such modern applications.
- Contents:**
- | <i>Topic</i> | <i>Approximate Time</i> |
|--|-------------------------|
| Linear systems | 2 weeks |
| Linear independence | 1 week |
| Linear transformations | 1 weeks |
| Matrix operations, matrix inverse | 2 weeks |
| Partitioned/block matrices, matrix factorization | 1 week |
| Determinants and properties | 1 week |
| Subspaces associated with linear transformations | 1 week |
| Dimension counting | 1 week |
| Eigenvectors and eigenvalues | 1 week |
| Characteristic equation and diagonalization | 1 week |
- Prerequisites:** MATH 1432. Some exposure to a programming language recommended.
- Text:** David Lay, "Linear Algebra and its Applications", 4th edition, Pearson, Boston, 2012.
- Assignments:** You will be asked to hand in approximately ten assignments, which will be due on Thursdays in the lecture. Solutions will be posted online.
- Computer use:** Part of the homework relies on the use of a linear algebra software package such as Matlab (recommended), available at Cougar Byte for \$99, or Octave, available at www.gnu.org/software/octave.
- Exams:** Midterms: October 3 and November 14, 2010; in-class exams. Final exam date and location to be announced by the registrar.

Final Grade:

Final exam contributes 30%, midterms 20% each, assignments 30%. All grades are summed and divided by the total number of points you can collect in the course. A percentage of 46% or more is D- , 54% or more is D, 62% or more is C, 70% is B-, 77% is B, 85% or more is A- , of 90% or more is A.