MATH 15a: Applied Linear Algebra
Fall 2015

Section 1
Instructor: Keith Merrill
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Office hours: to be announced
Course Assistant: Job Rachowicz

Text. Linear Algebra, Jim Hefferon.
Can be found free online at this address: http://joshua.smcvt.edu/linearalgebra. The book can also be purchased online.

Prerequisites. MATH 5a and permission of the instructor, placement by examination, or any mathematics course numbered 10 or above. Students may take MATH 15a or 22a for credit, but not both.

Exams. There will be two midterm exams and a final exam.

• Exam 1: Thursday, Oct 1, in class.
• Exam 2: Thursday, Nov 5, in class.
• Final Exam: Monday, Dec 14, 6 pm - 9 pm. Room TBA.

Grades. Your grade in the course will be based on the following:

(1) Homework (10% of your grade)
   • Homework assignments will be collected once a week.
   • No late homework will be accepted, but your three lowest homework grades will be dropped.
   • I encourage you to discuss homework problems with your classmates, but you must write up your own solutions.

(2) Quizzes (10% of your grade)
   • Short quizzes will be given regularly.
   • No make-up quizzes will be given. Missed quizzes count as zeroes. However, the lowest 25% of your quiz grades will be dropped.

(3) Two midterm exams (each 25% of your grade)
(4) Final exam (30% of your grade)

Calculators. You should have access to a scientific calculator (an online one is OK). Calculators are not allowed during exams or quizzes. You do not need a graphing calculator.

LATTE. All course materials for Math 15a will be available online on LATTE. Log in at http://latte.brandeis.edu using your Unet username and password.

Office hours. You are encouraged to use my office hours and/or the course assistants’ office hours whenever you have questions about the course material. If you can’t attend my office hours, don’t hesitate to ask for an appointment at another time.

Four-Credit Course (with three hours of class time each week). Success in this 4 credit hour course is based on the expectation that students will spend a minimum of 9 hours of study
time per week in preparation for class (readings, papers, discussion sections, preparation for exams, etc).

**Students with disabilities.** If you are a student who needs academic accommodations because of a documented disability you should contact me and present your letter of accommodation as soon as possible. If you have questions about documenting a disability or requesting academic accommodations you should contact Beth Rodgers-Kay in the Office of Academic Services at 63470 or at brodgers@brandeis.edu. Letters of accommodations should be presented at the start of the semester to ensure provision of accommodations. Accommodations cannot be granted retroactively.

**Academic Integrity.** You are expected to follow the University’s policy on academic integrity, which is distributed annually as Section 4 of the Rights and Responsibilities Handbook (see [http://www.brandeis.edu/studentaffairs/srcs/rr/index.html](http://www.brandeis.edu/studentaffairs/srcs/rr/index.html)). Instances of alleged dishonesty will be forwarded to the Department of Student Development and Conduct for possible referral to the Student Judicial System. Potential sanctions include failure in the course and suspension from the University. If you have any questions about how these policies apply to your conduct in this course, please ask.

**Learning Goals for Math 15a.** Students in Math 15a will:
- Work with vectors and matrices, solve systems of linear equations, determine linear independence/dependence, find a basis and compute dimension, study linear maps, study change of basis, compute determinants, and find eigenvectors and eigenvalues.
List of Topics
NOT yet accounting for holidays or midterms

Week 1  Linear Systems, I.1
Week 2  Linear Systems I.1, I.2, I.3
Week 3  Linear Systems I.3, II.1, III.1
Week 4  Linear Systems III.2 (briefly), Vector Spaces I.1, I.2
Week 5  Vector Spaces II.1, III.1, III.2
Week 6  Vector Spaces III.2, III.3, Maps I.1, I.2
Week 7  Maps II.1, II.2
Week 8  Maps III.1, III.2, IV.1
Week 9  Maps IV.2, IV.3
Week 10 Maps IV.4, V.1
Week 11 Determinants I.1, I.2, I.3
Week 12 Determinants III.1, II.1
Week 13 Similarity II.1, II.2, II.3