312. Linear Algebra. *Fall 2014 Syllabus*

Professor: Robert Strain (strain at math DOT upenn DOT edu)
Professor office hours: Tuesday 11-12
Professor office: DRL 3E5

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TA office hours: Monday 2-3pm and Thursday 3-4pm
TA office: DRL 3N8A

Course Web Page: `http://www.math.upenn.edu/~strain/14ma312/`
Class schedule: Tuesday and Thursday @ 1:30 - 3:00PM in DRL A4.
First class, last class: August 28, December 9.

Textbook: "Introduction to Linear Algebra" by Gilbert Strang (4th Ed)

Brief course description: Linear Algebra is central to numerous modern applications of Mathematics. For instance, anytime a computer is parsing a large amount of information you can be sure that Linear Algebra is involved. Our goal is to present the major ideas and to increase your technical skills.
Prerequisites: Math 240 or its equivalent.

Canvas: The class will make use of Canvas to post assignments, grades, announcements, etc. Students will be responsible for checking Canvas regularly during the semester.

Homework: Weekly, posted on the courses Canvas website. Homework will be assigned on Thursdays, and it will be due the following Thursday at 4pm in your TA's mailbox. You will be allowed one week to complete each assignment. Collaboration between students is encouraged, but you must write your own solutions, understand them and give credit to your collaborators. (To be precise, put a list of the students with whom you collaborated on your homework.)

  Late homework will not be accepted.
  Your two lowest homework scores will be dropped.

Attendance and Course Notes: It is in your best interest to attend each lecture and take accurate notes. You will be tested on the material **as it is covered in class**. If you miss a lecture, make sure that you copy from a classmate and review the notes from that day.

Computers: I will sometimes use Matlab in class on the projector. However, Matlab knowledge will not be required on the exams or in the homework.

Exams: There will be three in class exams. Exam attendance is *manditory*; please make sure you can attend the exams *before* enrolling in the course. Make-up exams will only be administered for medical reasons with a doctor's note. Exams are closed-book and closed-notes. No calculators, computers, or smart phones are allowed.

The first exam is on Tuesday, September 30. **Before drop deadline.**

The second exam is on Tuesday, November 4. **Before withdraw deadline.**

The third exam is on Tuesday, December 9 (which is the last day of classes). **Note that this exam dates were updated. Be sure you have the correct dates.**

Evaluation: Your final grade is based on your level of participation in class (10%), the homework (21%), as well as the in class exams (23% each).

Topics to be covered:

- Solving Linear Equations (Strang Chapter 2)

- Vector Spaces and Subspaces (Strang Chapter 3)

- Orthogonality (Strang Chapter 4)

- Determinants (Strang Chapter 5)

- Eigenvalues and Eigenvectors (Strang Chapter 6)

- Linear Transformations (Strang Chapter 7)

- Various Applications (Strang Chapter 8)

(The above topics are conditional on time constraints and subject to change.)