News:

Instructor Office Hours will be held as "Homework Clinic" (for the wounded) in Gug. 305 from 2-5pm on Tuesdays.

TA Office Hours: TBD

Theme: This course aims to provide a solid mathematical foundation for a number of disciplines in systems theory (communications, signal processing, control), optimization, machine learning, among others. Topics covered include finite dimensional vector spaces, matrix theory, norm and metric spaces, Hilbert spaces, and applications in systems sciences. Particular attention will be given to strengthening students ability to read and do formal mathematical reasoning as required for many graduate courses in systems, signal processing, communication, control, and optimization.

Syllabus

Schedule/Slides/HW Assignments

Potentially useful links

Midterms: We will have two midterms approximately during the 4th and 8th weeks into the term. The midterms will contribute 30% each to the final grade.

Projects: The project for the class consists of a 4-5 pages of report using the style file on this page http://control.disp.uniroma2.it/cdc2012/author_info.php (either tex or word).

The project report format is:

    1) abstract

    2) problem setup and assumptions

    3) basic results

    simulations, proof

4) applications

5) references

The project has to deal with a theoretical or an applied aspect of the topics covered in the course, including non-trivial properties of linear spaces, linear operators, matrices and matrix inequalities, normed and metric spaces, among others, and applications in engineering sciences. The mere fact that the paper contains "matrices" would NOT qualify the paper as appropriate for the project and NO CREDIT will be given to reports that do not have an analytic component that is consistent with the level of discussion/instruction in the course. Please consult with the instructor about your project report if you are in doubt.

The project report is due as a pdf file (no other formats will be accepted), submitted to the catalyst dropbox site

https://catalyst.uw.edu/collectit/dropbox/mesbahi/32939

 by 5:00 pm December 10th. Please note that this site closes at 5:00 pm on December 10th.