MAE 546
OPTIMAL CONTROL AND ESTIMATION

TERM PAPER ASSIGNMENT
due: May 15, 2012 ("Dean's Date")

Your term paper should address a topic that is related to the course material, e.g.,

- Deterministic optimization of control histories for a nonlinear dynamic system
- Development and demonstration of optimal feedback control logic for a linear dynamic system
- Development and demonstration of optimal state estimation logic for a linear dynamic system
- Development and demonstration of linear-quadratic-Gaussian optimal control logic for a linear dynamic system
- Comparison of the robustness of an optimal and a sub-optimal control system
- On-line estimation of the parameters of a dynamic system

You may study any dynamic system that interests you. You may choose a system that is related to your graduate research or one that is far removed from it. Please let me know the topic that you have chosen for your paper by April 17th. The paper's due date is the "Dean's Date" (May 15th), the last day on which written papers may be submitted for the spring term.

Your paper should include:

- Abstract (One paragraph < 300 words. Write this *last*, as it is an overview of the report. The Abstract presents major approaches and findings of your report, and it is distinct from the Introduction.)
- Introduction (Background, motivation, organization of the paper. Be sure to include at least half a dozen references to prior archival publications in the field)
- Body of the Paper (Analytical approach, results and associated discussion, graphs and figures, citation of references)
- Conclusions (This section is similar to the Abstract; however, the Abstract presumes that the reader has yet to read the report, and the Conclusion presumes that the reader is familiar with details of the report).
- References

A typical length might be 15-to-25 pages. Evaluation criteria include technical content and discussion, clarity, and style (including graphics), as well as the difficulty of the topic chosen:

Introduction	10%
Technical Detail, Innovation, Difficulty, Amount of Work	30%
Completeness and Correctness of Discussion	25%
Engineering Style of Report, Grammar, Spelling	10%
Conclusions	10%
References	10%