

# MATH4406 (Control Theory)

## Instructions for the Course Summary Assignment

Prepared by Yoni Nazarathy, Last Updated: June 17, 2014

This final assignment of the course does not involve any problem solving but rather a summarizing writing task. The goal is to write a 4-6 page paper that briefly, yet precisely, describes some of the mathematical problems arising in control and some of their methods of solution. It is important that your paper touches at least 70% of the problems described and solved during this course. It is also critical that aspects that were not quizzed or evaluated in other assignments (including guest lectures), be covered to some extent.

The paper needs to be self-contained in that it assumes no prior knowledge of “control theory”. Nevertheless, you can assume that your reader knows basic probability and mathematics. Further, the paper should not mention the control course and needs to appear like a self contained document. In this respect, you should reference some sources. An easy (and acceptable) choice would be one or more of the books suggested in this course. But if you go a bit further it will be appreciated.

The grading of this assignment is broken up as follows:

- **20% Precision and flawlessness:** Punctuation, English, consistency and having a general professional appearance (as though it was in a scientific journal).
- **30% Mathematical and technical correctness:** All statements (summaries of results) need to be precise and self contained within the paper (terms need to be defined - even if this is done very briefly).
- **30% Scope:** As described above, the requirement is that 70% of the general problems described and solved in the course are (briefly) summarized. In addition, the other items covered dealing with deterministic state-space optimal control and with broader problems in control theory need to be presented.
- **20% Originality and touch:** Is your paper written in a smooth and original form? If so, even a seasoned control theorist would enjoy reading it as it would give a slightly different viewpoint on the field. Further, non-specialists or researchers that do not know anything about control theory will also find it useful.