

**Math 664**  
**Topics in Applied Mathematics**  
**Spring 2004**

**Instructor: Prof. Leonid Faybusovich**  
**MWF 3:00-5:00**

**Textbook:** A.Ben-Tal and A.Nemirovski, "Lectures on modern convex optimization"  
SIAM, 2001

The following topics will be covered:

- 1.** Introduction to interior-point methods for solving semi-definite programming problems
- 2.** Linear-quadratic and  $H^\infty$  control from the operator-theoretic viewpoint
- 3.** Modern aspects of optimal robust control (mainly applications of matrix cube theorem)

The goal of the course is to demonstrate a lively and mutually beneficial interaction between modern optimization and control theory.

**Prerequisites:** a good background in linear algebra. All necessary operator-theoretic, optimization and control concepts will be introduced in the course.