

(3-2-0; —)

Modern Control Theory

MATH-430*

An introduction to the state-space approach to linear control systems. An advanced controls lab is part of the course.

Textbook: *Systems and Control*
by S. Zak (Oxford University Press)

Prerequisite: MATH-237*; MATH 312* *and* MATH 326*.

Instructor: R. Hirschorn

Evaluation:	IF Final Examination	\geq 40%
	Final Examination	65%
	Homework	25%
	Labs	10%
	OR Final Examination	100%

Outline:

1. Discrete and continuous time systems
2. Controllability, observability and minimal realizations
3. Lyapunov stability
4. Linear quadratic regulator and design of robust controllers
5. Design and implementation of sliding mode controllers
6. State estimation via Luenberger and deterministic Kalman-Bucy filters