Course Description: The course covers the following topics:

- Elements of a digital communication system, mathematical models for channels
- Probability and stochastic process overview
- Characterization of communications signals and systems
- Optimum reception of signals for additive white Gaussian noise channels
- Digital modulation schemes
- Optimum receivers for AWGN channels
- Linear block codes
- Convolutional codes and Viterbi decoding algorithms
- Modern coding concepts: Turbo codes, LDPC codes

Prerequisites: the equivalent of

- ECE-UY 3404 Fundamentals of Communication Theory
- ECE-GY 6303 Probability and Stochastic Processes (A working knowledge of probability and stochastic processes is required.)

Instructor:

Professor Thomas Marzetta, 370 Jay St, Room 902, (646)-997-3028, Email: tom.marzetta@nyu.edu, Homepage: http://engineering.nyu.edu/people/thomas-marzetta, Office hours: Monday 2:00 – 4:00, or appointment by email.

Grader:

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Required Text Books:


Homework: Homework will be assigned, but not collected or graded. We will discuss homework problems during class, and solutions will be provided. Notwithstanding, it will be difficult to pass quizzes and exams if you don’t do the homework!
Quizzes: We will have a quiz at approximately 2 week intervals. Closed book; no calculators or cell phone allowed.

Matlab exercises: There will be approximately four Matlab exercises assigned throughout the semester.

Midterm and Final exams: There will be one midterm (probably on 12 March), and one final exam (14 May).

Grading Policy: Quizzes 15%, Matlab exercises 15%, midterm exam 30%, final exam 40%.

Last updated: 1/24/2020, Thomas Marzetta