
E2 231: Data Communication Systems

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Overview: The objective of this course is to teach some of the basic principles underlying modern data communication systems. The course will emphasize source coding, cryptography and channel coding. Topics covered will include data compression, quantization, Huffman and Lempel-Ziv coding, symmetric and public-key cryptography, fundamentals of block codes, non-binary codes, and cyclic codes such as BCH and RS codes. Selected “real world” applications of these topics will also be covered.

Prerequisites: Basic knowledge of linear systems, probability and linear algebra will be sufficient. Some knowledge of digital communication principles will be useful but is not required. We will review all necessary concepts in the course.

Grading: There will be two mid-terms and a final exam. Homework will be assigned, but not graded. Occasional programming assignments may be assigned.

Textbooks: We will use the following two textbooks. Additional reading material will be provided as required.

- Elements of Information Theory by T. M. Cover and J. A. Thomas, John Wiley & Sons, 1991 (Mainly Chapter 5)
- Algebraic Codes for Data Transmission by R. E. Blahut, Cambridge University Press, 2003 (Chapters 1 through 6)

Class and Office Hours: Classes will be held on MWF, 9.00-10.00 AM, in the CEDT auditorium. Office hours will be held at 5.00-6.00 PM on Fridays.