Information Theory, EL 606

Instructor: Dr. Emina Soljanin

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Class Time and Place: Tuesday 3:35-5:50, 600 Roger Hall.

Prerequisites: A good understanding of probability is essential for this course.

Grading: homework 30%, midterm 30%, final 40%.
Only selected homework problems will be graded. Exams will be in class.

Required Text: T. M. Cover and J. Thomas, Elements of Information Theory, Wiley, 1991.

Course Outline:

- Information measures: entropy, relative entropy and mutual information, Ch. 2.
- Asymptotic equipartition property, Ch. 3.
- Entropy rates of stochastic processes (brief), Ch. 4.
- Data compression, Ch. 5.
- Channel capacity, Ch. 8.
- Differential entropy, Ch. 9.
- The Gaussian channel, Ch. 10.
- Rate distortion theory (brief), Ch. 13.
- Network information theory (brief), Ch. 14.