

ECE 3075A - Fall 2003
Problem Set #1

Assigned: August-20-2003

Due Date: August-27-2003

General Note:

- Homework is due at class time on the “Due Date”; no late homework will be accepted.
- Make a **COVER PAGE** for your homework, including your name, GT number, the problem set number, due date and the date you actually turn it in.

Reading: In *Probabilistic Methods of Signal and System Analysis*, Chapter 1, Section 1-1 through 1-8, pp. 1-29.

PROBLEM 1.1:

Conduct a coin-toss experiment involving two coins (use quarters). Record the outcome at each trial and tabulate the accumulative number of occurrences, and the corresponding relative frequency of occurrences, of each possible event, i.e. {HH, HT, TT}. Perform trials until you start to see some regularity in the relative frequency of occurrences. Use appropriate tools such as spreadsheet programs or Matlab to ease your calculation and to present your result in graphs.

PROBLEM 1.2:

Repeat Problem 1.1 after artificially introducing “bias” to one of the coins. Taping a dime to a quarter on one side of the coin would introduce a “bias” to the coin.

PROBLEM 1.3:

Probabilistic Methods of Signal and System Analysis, Chapter 1, Problem 1-2.1

PROBLEM 1.4:

Probabilistic Methods of Signal and System Analysis, Chapter 1, Problem 1-4.7

PROBLEM 1.5:

Probabilistic Methods of Signal and System Analysis, Chapter 1, Problem 1-6.2