

CS3236: Homework 1

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Due Monday, 18 August, 2pm

Submission: Submission can be made in person before the beginning of the lecture, or by upload to the IVLE Workbin. You may submit handwritten answers (possibly scanned), but they must be **clearly readable**. Answers that are not readable may receive only partial marks. Late answers are still accepted on Tuesday (on the IVLE Workbin only), but receive only 50% of the possible marks. Any later submissions receive no marks. Assignments are graded out of 20 points.

1. (4 points) Do exercise 1.5 in the textbook.
2. (6 points) Do exercise 1.8 in the textbook.
3. (10 points) Invent your own error correcting code for the binary symmetric channel with noise $f = 0.1$. Any code will do (other than the ones discussed in class or in the textbook!). Analyze the performance of your code:
 - How many errors can you tolerate?
 - What is the rate of your code?
 - What is the probability of a bit error or block error? (You do not need to give both, either give the probability of a bit error or that of a block error.)