

Due: Feb 2, 4pm. (same day as the midterm).

This assignment should help to review the material so far in the course and also gives you an idea of the kind of questions to expect on the midterm. On Feb 2, there will be a review portion during the first half-hour or so and then the midterm test will be distributed while you have a break. You will then have about one hour to answer the midterm. The midterm will be open book. But you will not have time to look everything up! You might try to do this assignment in one hour, at least the first draft.

A further note: in these tests, I am trying to encourage you to understand the material and to be able to explain the material to another person. (This is the kind of learning that might be useful for you.) It is important that you do not resort to copying the notes into your answers, since they are not your own words, and would not reveal your own understanding. Also, it is important that you answer the question asked, rather than state random, possibly true, facts. So markers will be instructed to penalize answers that are irrelevant or plagiarized. The purpose of the open book format is twofold: the real world context is authentically simulated, and also the questions will be such that the correct answers will not be available by copying from the text or posted notes. Some learning and thinking might be required! On the other hand, those who have read the notes and readings and done the assignments should be well-prepared for the midterm.

1. (8 marks) In the sports leagues we examined, there was doubt that the top team in the league was really better than the bottom team. How did we try to resolve this doubt?
2. (7 marks) The so-called “bell curve” or “Normal curve” does have the shape of a bell. How does this shape relate to the mean and SD of the normal distribution?
3. (7 marks) What does Table 1 on p 364 suggest about alternative methods for short-term forecasting?
4. (8 marks) With reference to the article “Statistics in the Courtroom”, why did the p-value of less than $1/1,000,000$ suggest that Gilbert was guilty?
5. (7 marks) In the Turkey mail article (Advertising as an Engineering Science”), how did the design try to reduce the likely effect of age of the email recipients?
6. (8 marks) Explain why averaging can make a portfolio of risky investments into a relatively stable portfolio investment.
7. (8 marks) Using Table 2 on p 420, how did the author of the article decide that investors could benefit from using regression analysis?
8. (7 marks) What outcome of a symmetric random walk (that is, the kind generated by a fair coin) is surprising to naïve observers?