

Statistical Methods Part 1

Exercise 3

Worth 2 marks out of 100 marks.

You have been asked to take an HIV test. There is no particular reason for you to believe that you carry the HIV virus. However, the doctor tells you that the test is in fact positive and that the probability for a false positive is 1 in 1000 and hence the probability that you are HIV positive is 999 in 1000. For people in your situation the risk for carrying HIV without knowing it is 1 in 10000 (fictitious numbers). The doctor has made a logical mistake which, unfortunately, is not uncommon.

1. Which mistake has he made?
2. What is the probability that you carry the HIV virus, based on the numbers and the story above? Solve this by making a 2 by 2 table (truly positive/negative vs tested positive/negative) assuming that the probability for a false negative is zero.

Deadline Thursday 29 November at 14.30 (i.e. beginning of lecture).