

basic probability; due in 2 weeks; dec3

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1. Say your parents paid for your Rutgers education \$100k, was their investment a good one? University education is expected to increase lifetime earnings by \$.5m. Yet, it is not that easy to graduate from Rutgers—sure, 90% of students graduate, but that's assuming they passed 1st semester stats class, and only 40% of students pass stats—you cannot continue with your studies if you don't pass stats. [hint: of course you need to calculate expected value]
2. Say there are 7 Democrats and 3 females in this class of 10. There are no Independents (a person can be either Republican or Democrat). 2 females are Democrat. Put counts in a table, and calculate the probability that a male is a Republican. [That is, given that a person is a male, what is a probability, he is a Rep?]
3. Imagine you've landed your dream job as governor of the great state of NJ! As recent history indicates, it is important to plan for disasters! Say that there is a probability of .001 that severe storm like Sandy will hit the state in any given year. Sandy costed \$65 billion. But there is much higher probability that there will be damage due to more moderate weather. Say, on average, every month there is \$100,000 in damage due to weather in the state. What, (and by how much) is more costly to the taxpayer: typical weather damage or severe weather damage just like Sandy?

general directions (always the same):

- ps is due in Canvass by the beginning of the class
- keep it short; max: 5 single spaced pages; typically way less, say 1 or 2
- if you are stuck, email me early! also email if you want some feedback and make sure you are on the right track, etc
- show your work, a “naked” number won't do! unless indicated otherwise, always do calculations by hand
- likewise, numbers should be interpreted—we are not only interested in calculating values of interest, but we are interested in their meaning! whenever you calculate your final quantity if interest, interpret it! do interpret!! do make sure to make sense of the stats you've produced!!
- if your handwriting is bad, please type
- i may want to discuss your assignment in class, which should be beneficial to you and give you more feedback; if however, you'd like to keep it private, let me know!
- numbers in brackets are relative importance of each item for grading; adds up to 10
- always provide source of the original data, eg url, dataset name and brief description