Math151 at the University of Tennessee, Knoxville - Chat for November 18, 2015 with the course instructor, Louis Gross.

I will be online starting at 8:30PM and will be happy to answer questions regarding any aspect of the course, assignments, etc. You can type in this document to ask questions.

When you ask a question, please do not use your name because this document will be saved and publicly posted after we close it. I will be on-line at least until 9:30PM but will stay on longer if there are still questions. Note that I do not know the identity of anyone posting questions - each participant shows up as “Anonymous” animal.

I looked at the chat from yesterday, but I am still having trouble with getting the values of .25 , .5, and 1 as expressed in the answer key for #1. If you could explain the process for #1, that would be greatly appreciated…

For #1 - we are interested only in the case in which the offspring are of type aa. So the only way this can happen is if the parental mating is Aa X Aa or Aa x aa or aa x aa. So there are 3 different cases and in the first case of an Aa x Aa mating only .25 of the offspring are aa - so that is where the .25 comes from. In the case of the mating Aa x aa, .5 of the offspring are aa so that is where that comes from and in the case of a aa x aa mating all of the offspring are of type aa so you get 1 in the calculation. Is this OK now?

So, would a punnett square be useful in answering this question?
Yes, that is exactly what I did use in class today when I went over this - there are 3 Punnett squares for the 3 different matings that can give an aa offspring.

Alright, thank you.

I am still having trouble with number 5. I may have copied down the wrong formula and as of right now I don’t have a book to double check the formula.

OK - let me try to use the math expression option here to give you the correct formula for a binomial distribution

it is $C(n,k)p^k(1-p)^{n-k}$ where $C(n,k)=n!/(n-k)!k!$
we also wrote the C(n,k) as n over k with parenthese around it
in the case of problem 5 the n = the number of trials (which in this case is 5 since we are looking at a group of 5 students, and the k = 3 since we are asked for 3 "successes" and the p = .2 is the probability of "success" on a single trial (in this case passing the skill evaluation). Is this OK now?

Yes Thank you!

I am confused about #5 as well— specifically I am getting a different final answer than what is listed when I calculate each of the three probabilities. For example, shouldn't probability of all 5 are successful be 1 x (.2)^5 x 1 ?

Yes - isn't that what is on the answer sheet? = .00032

Answer sheet says 1/125

You may have downloaded an earlier answer sheet - there were some changes - the current answer sheet has this correct.

Ohh. That makes sense!

Could you please explain parts b and c of #6?

For (b) we want the conditional probability P(I|F) - so we use the definition of what this conditional probability is - it is the probability of I and F both occuring, divided by the probability that F occurs. Now 40 of the individuals are females with an ear infection so the probability of I and F is 40/250 and similarly a total of 140 of the individuals are female so the probability of F is 140/250. so this gives the answer on the sheet.
OK?
Alright
For part (c) we want the conditional probability given that the individual is not female, that they do not have an ear infection. Again using the definition of this - it is the probability of both being a male and not having an ear infection - this is 50/250 - divided by the probability of not being a female which is the fraction which are males which is 110/250
OK?

Can we over part b on number 7?

OK - so we are asked to find the conditional probability for an individual who is not obese , that they eat a low fat diet.

Now for part (b) we are asked to find the fraction, given that a person is not obese, who eat a low fat diet. So this is a conditional probability - we are given that a person is not obese - this restricts the sample space (the dartboard) to just those individuals who are not obese - this is .65 fraction of the population (the ones who are not obese). Of these, only some are individuals who both are not obese and who eat a low fat diet - we find this fraction in the same way we did in part (a) except we are now splitting up the fraction of obese individuals who are on a low fat diet and not obese - so think of this as looking at all individuals who are on a low fat diet - they are in only two groups - those who are obese and those who are not obese. We know from the problem that .2 are on a low fat diet and that .03 are both obese and eat a low fat diet. So that .2-.03 = .17 are those who are eat a low fat diet and are not obese. This gives the two numbers in the equation in the answer sheet for the conditional probability.

OK?

Alright, thank you.

Will there be any type of curve at the end of the course?

As I announced in class, there will be several ways that participants can affect their final grade. First, one of the 3 exams is dropped (this automatically adds a “curve” to the course in some respects). Second, for the various in-class exercises which count 20% of the course grade, there have been 21 of these to date and I will do one more giving 22 total. We will drop the lowest 7 of these - so 15 will count. This allows those who had to miss class for illness or other reasons not to be penalized, but is also essentially raises the overall course grade. Third, there are several options for extra credit that would raise someone’s grade.

Regarding the issue of a “curve” this is essentially setting a pre-determined distribution of grades which I really dislike. If everyone gets a 99 score, I will give all A’s and I don’t want to penalize people to be in any sense forced by some nominal “curve” to give out a certain number of A’s B’s etc.

That makes sense, thank you.

Could I ask what the difference is between the U and upside down U is, just to make sure I understand it?

Sure - A u B is the union of A and B - so it represents for P(A u B) the probability that A or B or both A and B happen. So in the venn diagrams we used like a dart board, this probability is the relative area of the dartboard that is in A or B. The “upside down u” is the intersection symbol - it says that something is in both A and B and the probability of this means a dart lands in the space that is the intersection of A and B

OK?
Yes, thank you

If there isn’t anything else, I am going offline

Goodnight.