The midterm that I gave last time I taught this course is posted on blackboard, you should expect a somewhat different midterm, because yours is at home. Details on the format are below.

The midterm will cover Chapter 4 and Sections 5.2-5.6. You should be able to:

- Know the connection between cumulative distribution functions and probability density functions and use both to compute probabilities.

- Be able to identify if a function is a cumulative distribution function or a probability density function.

- Compute expectations of random variables and functions of random variables, particularly the special examples from the class.

- Compute probability a random variable takes values in an interval, particularly the special examples from the class. In particular the normal distribution, where you need to standardize and and then use the table.

- Know what a joint pmf/pdf is and how to use it.

- Compute marginal distributions from joint distributions.

- Given two of the following three compute the third: joint, marginal, conditional pmf/pdf.

- Show random variables are independent or not, and how to use when they are.

- Compute expectations of functions of several random variables.

- Anything else that was on the homework.

Details on the format of the exam:

The exam will be posted on blackboard at 8am on Friday morning. You can either print it out with one questions per sheet and solve the problems on that sheet like normally, or there will be a more compact version and you can solve the problems on your own paper. Either way you need to upload it to Gradescope by Friday night, 11:59 PM. During that time interval you choose 3 hours that you will work on the exam. For ethical as well as practical reasons, as more time will not significantly change your grade, you should not spend 3 hours on it.

The questions will be a bit different than a normal in-class exam. Some of the problems will be much more difficult or unfamiliar. You should not expect to answer everything completely, but you hopefully can make some progress on each problem.

If you anticipate hardship taking the exam on Friday, please talk to me as soon as possible.

Calculators will not be needed, but I guess you can use them.

The next page is a sample of what the front page will look like. I expect it to be 6-8 problems.

Cheating will be taken extremely seriously. Due to the changes we are dealing with this semester, we are trying to be accommodating and allow you take the exam as is most convenient for you. If you take advantage of this situation you will be reported.

So we are completely clear: it is extremely obvious to me when you are cheating. I know who is just copying their homework assignments, your exams will be checked closely. In my other class, I already caught students using external resources and had to report them.

Any answers you write on your exam are subject to an oral follow-up. This includes cases where, I simply do not understand what you're writing and need clarification.

Name: _____

ID number: _____

Instructions:

- Read problems very carefully.

- The correct final answer alone is not sufficient for full credit - try to explain your answers as much as you can. Because this is an at home exam, you have more time to explain your answers clearly.

- Your answers are subject to follow up questions. If you write something that is unclear, beyond the scope of the course or for whatever other reason necessitating it, you can be asked follow up questions.

- Either print out this exam and then scan or take a picture to upload to gradescope, or answer one question per piece and scan or take a picture to upload to gradescope.

- Your final answers need to be simplified only if this is required in the statement of the problem. Otherwise, you there is no need to simplify numerical quantities like $4 \cdot 0.3 \cdot \frac{0.3 + \frac{3}{4}}{\frac{7}{5} + \frac{23}{547}}$ or to reduce fractions like $\frac{3}{6}$ to lowest terms. There is also no need to simplify factorials such as $5!$ or binomial coefficients such as $\binom{7}{3}$. Your final answer should not involve infinite sums.

- If you need more than one sheet of paper for a problem, make a remark at the bottom of the first sheet.

Resources used: _____

_____

I have read the above instructions and the work in this exam is solely my own:

Signature: _____

Question:	1	2	3	4	5	6	7	8	Total
Points:	15	10	10	10	10	10	10	10	85
Score:									