

APPM 3570/STAT 3100 Spring 2019 Homework 8 - Due Mar. 13

- Chapter 5, Problems 7, 11, 20, 23, 27, 28.
- Chapter 5, Theoretical Exercises 1, 11.
- **Test retaking.** Assume that for some student, each time they take an exam, their score is a independent sample from a uniform distribution on $[0, 100]$.
 - (a) What is their expected score if they only take the exam once?
 - (b) In one policy, the student is allowed to take the exam twice and pick the maximum score. What is the expected score? Assume that the two scores X_1, X_2 are independent (the student doesn't learn anything from taking the first test). Hint: if X is the maximum score, first find the CDF of X by using independence of the two scores.
 - (c) An alternate policy allows a student to retake the exam once, but if they do, they must accept their second score as their final score. If a student only decides to retake the exam if their initial score is less than 50, what will their expected final score be?

Note, as with all homework sets in this class, that you may discuss the homework problems with your classmates. However, the work you turn in must be your own – you should write your solutions on your own. Identical solutions will be considered as a violation of the Student Honor Code. Furthermore, **no work equals no credit**. Your homework should be neatly written or typed and stapled.

On the front of your homework clearly print your:

- First Name and Last Name
- Lecture number (either Section 001 or Section 002) and homework number.
- Draw a **blank grading table** with room for 3 problems, format points and a total:

Question	Points
Format	
Total	

- Points will be deducted if these instructions are not followed.

Remember that writing style, clarity, and completeness of explanations are always important. Justify your answers.