**EECS 461 Probability and Statistics**

Fall Semester 2022

Assignment **#8** Due **18 October 2022** Back to Tuesday.

Reading: Sections 4.7 - 4.8, 5.1 in Yates/Goodman

Do all of the Quizzes in the Reading assignment but do *not* hand them in. Answers to the Quizzes are on the book's website (search Yates Goodman Wiley)

For all problems from the book, you should use the method(s) from the corresponding section to solve the problem.

1. For a 1-hour midterm exam, 80% of the students finish the exam and hand it in by the end of the hour, and 20% have to turn them in at the end of the hour without finishing the exam. For the students who finish by the end of the hour, their turn-in times are uniformly distributed between 45 and 60 minutes. Let $T$ be the random variable of the turn-in times of the students, in minutes.
    a. Find the PDF of $T$.
    b. Find the CDF of $T$.
    c. Find the expected value of $T$.
2. Problem 4.7.6, p. 160.
3. Problem 5.1.4, p. 207. Hint: To show that it is a valid joint CDF, you need to show that all of the properties of Theorem 5.1 hold AND that the joint CDF is monotonic non-decreasing, which would involve Theorem 5.2.

  