

S&DS 241/541  
Problem Set 9  
due Nov. 20, 2024, 11:00 pm via  
Gradescope

**Guidelines**

- Please write legibly and explain your reasoning. For full credit, your answer and your reasoning need to be not only correct, but clear to the grader.
- Late problem sets will not be accepted unless there are extenuating circumstances (e.g., an illness or family emergency). Undergraduates must obtain a Dean's excuse for any late submission. Graduate students must obtain permission before the deadline. (As mentioned in the syllabus, we'll drop your lowest homework score.)
- You're encouraged to discuss the homework with classmates (this can be a good way to learn), but you must write your solutions independently and in your own words.

**Problems**

1. Chapter 7, Exercise 16.
2. Chapter 7, Exercise 17.
3. Chapter 7, Exercise 40.
4. Chapter 7, Exercise 76.
5. Chapter 7, Exercise 77. Note: For full credit, you should find the constant  $c$ , show your steps, and explain why we know that  $Y - cX$  is independent of  $X$ .
6. On a separate page, please write your name and acknowledge anyone who helped you or discussed the problem set with you (other than the instructor, TFs, and ULAs), as well as any written resources you consulted (other than the textbook and other resources on Canvas). If you don't have any acknowledgments to make, please write "I worked independently."