

Hand-in Homework 5

Due Monday, Oct. 12 by midnight except grad problem which is due Wed, Oct. 14 by midnight.

Solutions should be typed, not handwritten, and submitted as a single pdf file (grad problem submitted separately). No R is required for this assignment.

1. Problems 2 and 3 from “Some Sampling Problems”.
2. Part III Review Exercises (pp. 373-378): R.3.10, R.3.12, R.3.16, R.3.28, R.3.32 (see instructions for problems 1-18 at the beginning of the Review Exercises).
3. Graduate student problem (please submit as separate pdf file). Read the attached article from the NY Times (“Concussions in Teenagers Tied to Multiple Sclerosis Risk”). The study being described is at <http://onlinelibrary.wiley.com/doi/10.1002/ana.25036/full>. Answer the following questions. Explain your answers. Note: there is no need to understand or discuss the statistical methods used in this study.
 - (a) Identify the explanatory and response variables and indicate whether they’re quantitative or categorical.
 - (b) Was this an observational study or an experiment? If it was an observational study, was it a case-control (retrospective) study or a cohort (prospective) study?
 - (c) What confounding variables did the researchers adjust for in their analyses?
 - (d) Why did the researchers also record the number of broken limb bones as well as the number of concussions?
 - (e) It could be that concussions cause an increased risk of MS. But suggest another lurking variable (aside from the ones adjusted for in this study) that might explain the association between concussions and MS. Explain how it could create an association between concussions and MS without there being a cause-and-effect relationship.