Case Study 5: Lead

for February 24, 2012

Lead is a nasty poison. It never degrades, and if children eat it, it can cause brain damage. In the past, lead was used as a gasoline additive. As cars drove down the road, they sent a steady stream of lead out through their exhausts. Lead was also used in house paint, and as paint chipped away from the walls, the lead would fall to the ground and mix with the soil there. Both uses tailed off starting in the 1970s and had ended by the late 1980s.

We worry now about children playing in soil contaminated by lead and possibly eating it. Attorneys would like to sue the companies whose products caused this contamination, but they don't know whether to sue gasoline or paint manufacturers. They plan to measure lead in soil in various places to try to decide whether it is coming from auto exhausts or paint chips.

Questions for consideration: Sketch a plan of a neighborhood with roads, houses with yards, a park, a school, a freeway, and shops. (Or, use a map of an existing neighborhood.) Set up a scheme for sampling in this neighborhood to estimate how much lead is in the soil, and to decide whether it came from house paint or from car exhausts. Show us your neighborhood and describe your sampling scheme in your report.

Also figure out what other information you would want to record about the community. What sort of statistical analysis would you apply to the data you got from your investigation?

As mentioned last Friday, we will have also some prospective students in class on Friday.

Groups: Here are the groups that will work together on this case. The first student on each list will present the group's findings and should also organize group meetings. The groups should get together in the coming week and consider the case.

Group 1, Presentation:

Name	Email
Matt	stear067
Wen	fanxx102
Rachel	vonb0035
Jie	renxx034
Joel	bear0201

Group 2, Presentation:

Name	Email
Chris D	desja004
Zhou	fang0157
Bryan	mcca0828
Sarah	jaco0654
Lindsey	diet0146

Group 3, Report:

Name	Email
Xin	zhan0648
Qi	yanxx195
Felipe	acosta
Xiaoyi	zhuxx212
Emily	pech0081

Group 4, Report:

Name	Email
Yu-Feng	chang648
Chris H	hulme005
Jenny	dokke040
Garrett	lepa0050
Greg	schae029
Alain	vando026

Presentation groups: The presenter will have 12 minutes of class time to say what the team thought about the problem. To ease switching between groups, we will use my computer for all presenters, so if you choose to make a digital presentation, please email the slides to me by 2pm, or bring them on a thumb drive and arrive five minutes early. PDF format is preferred.

Report groups: Please email your report to me (PDF format preferred) by 2pm so I can make copies for the class. Your report should be at least one page long, but no more than two pages.