

FRES 1010 — Mythbusting, Skepticism, and Statistics
Homework 5 – Due Wednesday, Feb. 22

Homework Guidelines:

- The written portion of your homework assignment (if there is one) is due at the beginning of class on the due date specified above. **No late homeworks will be accepted.**

Data Collection Assignment:

This week we are going to investigate whether Coca-cola can dissolve metal. There are lots of myths about Coke, but one of them is that Coke is so caustic that a nail will dissolve if left sitting in Coke overnight. Here is your assignment:

Materials: A can of Coke, some tap water, two cups (any kind will do), 40 nails (supplied), and two envelopes.

Procedure:

1. Today in class I want you each to take 40 nails and divide them evenly between two envelopes. Then during class using the postage scale provided, weigh each envelope full of twenty nails and write the weight down on the envelope.
2. Later today, fill one cup with Coke and the other with tap water. The cup need not be full to the top, but put plenty of liquid in to cover the nails (at least 6 oz., say). Then *at random* select one of the two envelopes and place its contents in the Coke cup. Put the nails in the other envelope in the water cup. Leave the nails to soak.
3. Next Tuesday night remove the nails, and set them out to dry overnight. I suggest spreading them out on a paper towel, blotting them with another towel and letting them sit overnight. Be sure to keep the two groups of nails separate and don't lose track of which is which.
4. Once they are dry, return the nails to the original envelopes and bring them to class next Wednesday. We will re-weigh them and measure the mass loss for each group of nails.

That's it. Have fun. See you next week.