# Exercise 2: Sampling

For this assignment, complete the dataset, and then answer the questions to the best of your ability.

(adapted from CH4 ex.12)  
A college has N=150 faculty members. The dean wants to conduct a faculty salary survey selecting   
systematic sample of n=20 faculty. The list of faculty members appears on page 147. I have begun an Excel file, included with this problem set, with the first 100 entries filled in.

**Dataset**

First, complete the dataset by adding the final 50 entries from page 147. The following coding was used:

Division: 1= Eng&Prof 2= Medicine 3= Lit&SocSci 4= Biol&Sci  
Sex: 1= Male 2=Female

**Questions**

Then, answer the following questions:  
1) What should be the sampling interval for this design? (1 pt)  
2) What are the possibilities for the first random start? (1 pt)  
3) Draw a sample of 20 faculty members (2pts)  
4) Estimate the mean salary for the faculty using your n=20 sample. (3 pts)  
5) What is the variance for that mean? (3 pts)

Next, the dean of the school of medicine suggested that their professors were not paid as well as the other divisions’ professors and wondered if you could draw a sample to see if that is true.  
6) Draw a stratified sample from the dataset, using a sample size n=10, for each of the four  
divisions. (2 pts)  
7) Show your estimated mean salary for each division. (4 pts)

Finally, some of the female professors said the real issue wasn’t divisional but rather that women were not paid as much as their male counterparts. They asked you to check the data and see if they are correct.  
8) Draw a stratified sample size n=20 for both sexes (2 pts)  
9) Show your estimated mean salary by sex. (2 pts)