

Case Study: Horse Breed Groups

Today we are joined by prospective students. Please welcome them into your group. Share your names and something about yourself with each other. Perhaps even tell them why you like the U of Minnesota.

Who's in your group today?

I'm working with a veterinarian who's working on a method to predict a horse's weight from more easily performed measurements, such as height and length. We believe that the weight depends in part on the breed of the horse. Since there are many horse breeds, we originally divided the breeds into four breed groups (Arabian, Stock, Saddle, and Pony), and used breed group as a predictor in our model. It worked pretty well, and breed group did seem to help in the prediction.

However, we now want to justify our choice of these groups. The veterinarian originally just used her knowledge of the breeds, and we'd like to support her choices with an analysis.

We have data on about 600 horses, and there are maybe 250 Stock horses, 150 Arabians, 100 Saddle horses, and 100 Ponies. Each of these breed group is made up of three to ten breeds, (such as the Quarter Horse, the Tennessee Walking Horse, or the Welsh Pony), and the number of horses per breed range from just a couple to perhaps a hundred. For each horse, we have the weight and four more easily measured variables: height, length, girth circumference, and neck circumference. We believe that it's the relationship between these variables that are related to breed group; for example, the Stock horses may have a larger neck circumference than expected given their height.

What additional questions would you ask the client?

information from other side repeated below...

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How might you translate this scientific question into a statistical one?

How might you analyze the data to answer that statistical question?

for STAT8801 students

Name: _____

Describe a technique or approach that was discussed today that you found particularly interesting. Or instead, one that you disagreed with. Why?

for prospective students

Welcome to STAT8801, Statistical Consulting! We are glad you are visiting with us today. This course is a little different than the other courses in our department. I like to think of it as a capstone course, where students get a chance to put together everything they've learned and apply it to case studies taken from real-life studies. We also learn about how to communicate with clients, as well as professional practice and ethics.

Today we'll be discussing a case that I'm currently working on with one of my veterinary collaborators. We'll discuss it first in smaller groups and then as a whole.

We'll be mixing you up with our current students today. Feel free to contribute and ask questions as you feel comfortable, or just sit and listen.

In the upper left corner of this page, you will find a number. Find others with that number, and form a group for discussion of this case.