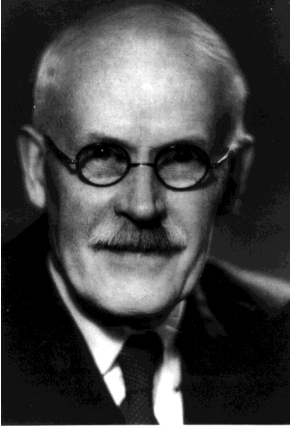


Homework Policies: You should give a brief and concise explanation for each question. Just writing down an answer with no explanation is usually not sufficient. If the homework requires output from Stata, incorporate that output into your written assignments. Homework is due at the *beginning* of class on the day indicated.

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The data you will need for this assignment can be found on the course webpage in the *letters.dta* file. These data are from 63 students who wrote as many letters of the alphabet as they could in 15 seconds with both their dominant and non-dominant hands. The variable “dom” contains the number of letters written with the dominant hand, and the variable “nondom” contains the number of letters written with the non-dominant hand.

1. Plot the response (dom) versus the explanatory (nondom).
2. Compute the regression of dom on nondom using Stata. What is the equation for the regression line?
3. What is R^2 and what is its interpretation? What is the conditional standard deviation of the response given the explanatory variable?
4. What is the predicted value for the number of letters written by the dominant hand for someone who can write 7 with their non-dominant hand? What is the average number of letters that can be written by the dominant hand for all individuals that can write 7 letters with their non-dominant hand?
5. Calculate the prediction and confidence intervals for these estimates. Comment on the relative sizes.
6. Plot the observed data, regression line, and prediction interval on the same plot.
7. Plot the observed data, regression line, and the confidence interval on the same plot.

Famous Statistician of the Week**Who is this?**

Sir Harold Jeffreys

Why is he cool?

As a lecturer Jeffreys had a poor reputation. A former student D J Finney recalls:-

In 1937-8 .. Lawley and I were two young graduate mathematicians in Cambridge ... We began by attending a lecture course given by Professor Harold Jeffreys on 'Probability'. He was not the clearest of lecturers, and we were soon very confused Jeffreys's personal charm and enthusiasm did not prevent a steady decline in attendance until Lawley and I found ourselves the only survivors of an initial 15. ... There came a week when we were both prevented from attending, and the following week we found to our embarrassment that the lecturer had abandoned the course.

Courtesy of <http://www-gap.dcs.st-and.ac.uk/~history/Mathematicians/Jeffreys.html>