

Midterm

Janette Avelar

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Instructions: This exam will be graded out of 50 points. So, please choose your own combination of problems to add up to 50 possible points. Extra credit up to 60 total points is allowed.

Questions selected: Q3

Q3: Run a simulation demonstrating the effect of sample size on correlation. Use a range of sample sizes from $N=2$ to $N=500$. For each different sample size, draw a sample from a random normal distribution (use the `rnorm()` function). Let that sample be your DV. Then create an IV that is equal to your DV plus some random noise (again using `rnorm()`). If the SD of your random noise is the same as the SD of your DV, the “true” correlation between the DV and the IV should be 0.5. Calculate what the correlation is between your IV and DV for each sample size. Plot the correlations as a function of sample size.