

Simple Linear Regression: Inference

Data on 463 courses at UT Austin were obtained to answer the question: “What factors explain differences in instructor teaching evaluation scores?”

We will look at the variables:

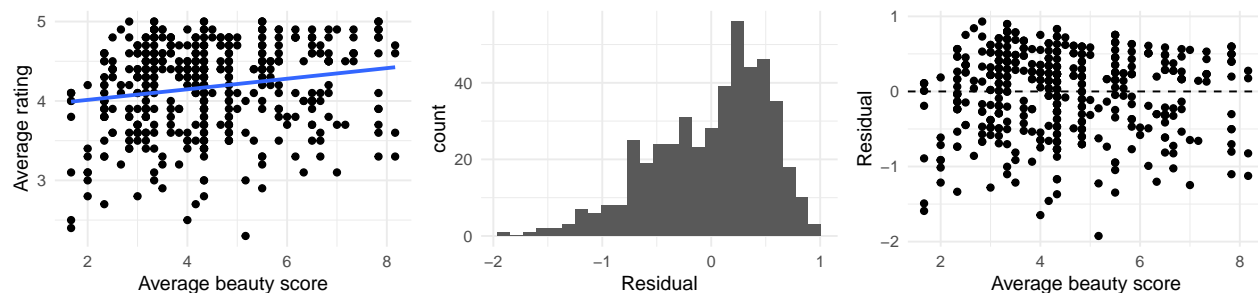
- **score**: course instructor’s average teaching score, where average is calculated from all students in that course. Scores ranged from 1-5, with 1 being lowest.
- **bty_avg**: course instructor’s average “beauty” score, where average is calculated from six student evaluations of “beauty”. Scores ranged from 1-10, with 1 being lowest.

Linear regression model:

Hypothesis test

Hypotheses:

Are conditions for SLR met?



Assuming conditions met...

term	estimate	std.error	statistic	p.value
(Intercept)	3.880	0.076	50.961	0e+00
bty_avg	0.067	0.016	4.090	5e-05

- Fitted model:
- Interpretation of intercept and slope:

Calculate the test-statistic and p-value for the hypotheses:

If instead $H_A : \beta_1 > 0$, what code would you write for the p-value?

If instead $H_A : \beta_1 < 0$, what code would you write for the p-value?

Confidence Interval

Let's obtain a 95% CI for β_1 . Assuming conditions for SLR met...

Critical value code:

Construct your interval: