RStudio lab assignment: linear regression basics

[How to submit an assignment]

[Code templates in R]

[Interpretation templates]

[Variables in GSS]

Note: Do not run or interpret the analyses without opening [Variables in GSS] file, using "What it measures" columns, reading variable type, how the questions were asked, and the response sets.

The video below shows how to complete this assignment with different variables from start to finish. Watch the video and read the instructions together. You need to attend the lecture or watch the lecture video to understand this assignment.

[SAMPLE ASSIGNMENT VIDEO and GOOGLE DOC]

Assignment instructions

In this assignment, you will work on four questions.

- In the first question, first, you will create a linear regression model using one independent variable.
- In each of the following questions, you will add an additional independent variable to the existing model.

Reminder: Ensure the highlighted parts are the same within each model, but different for each model.

model1 ➜ model1
model2 ➜ model2

```
model1 <- lm(conrinc ~ god, data = gs
tab_model(model1, show.std = T, show.
```

Note: Make sure to run “Install and load packages” and “Load data” codes first (at the top of the R script file)

Questions

0) The following are the variables to use in this assignment. Go to [Variables in GSS] file, copy and paste “what it measures” information and the “full wording of the question” for each variable. You will use these two information when interpreting the model in the final question **(Otherwise -10)**.

Variable	What it measures	Full wording of the question
coninc		
wwwhr		
educ		
sei10		
hrs1		

1) Run a linear regression model (model 1) using:

dependent variable: **coninc**
independent variable: **wwwhr**

Code (-5):	*model 1 linear regression model code here*
Table (5 points):	

2) Run a linear regression model (model 2) using:

dependent variable: **coninc**
independent variable 1: **wwwhr**
independent variable 2: **educ**

Code (-5):	*model 2 linear regression model code here*
Table (10 points):	

3) Run a linear regression model (model 3) using:

dependent variable: **coninc**
independent variable 1: **wwwhr**
independent variable 2: **educ**
independent variable 3: **sei10**

Code (-5):	*model 3 linear regression model code here*
Table (15 points):	

4) Run the final linear regression model (model 4) using:

dependent variable: **coninc**
independent variable 1: **wwwhr**
independent variable 2: **educ**
independent variable 3: **sei10**
independent variable 4: **hrs1**

Finally interpret the model 4 **[interpretation: 50 points]**.

Linear regression analysis interpretation breakdown:

First paragraph: [The significance levels] Mention which variables ("what it measures") are statistically significant, and which variables are statistically insignificant. Variables with at least one asterisk (*) are statistically significant **[10 points].** (use linear regression interpretation breakdown template: first paragraph)

Second paragraph: [The explanation of coefficients (Estimates column)] Mention how independent variables increase or decrease the value of the dependent variable, using the "Estimates" column. When reporting the estimates (coefficients), ensure that the sentence includes the units (one unit, score, year, dollars, etc.) of both the independent and the dependent variable **[20 points].** (use linear regression interpretation breakdown template: second paragraph **AND** reporting of estimates (coefficients))

Third paragraph: [The explanation of standardized betas (std.Beta column)] Mention the strongest predictors (variables) of the dependent variable using the "std.Beta" (standardized beta) column in order. Only mention the statistically significant ones. "std.Beta" is an absolute number, which means, for example, -.56 is stronger than .45. **[15 points].** (use linear regression interpretation breakdown template: third paragraph)

Fourth paragraph: [The explanation of Adjusted R-squared value (R2 adjusted)] Mention the Adjusted R-squared as a percentage with the statistically significant variables **[5 points]** (use linear regression interpretation breakdown template: fourth paragraph) **AND** (reporting of adjusted R-squared)

Code (-5):	*model 4 linear regression model code here*
Table (20 points):	
Interpretation (50 points):	**First paragraph**: *type here* **Second paragraph**: *type here* **Third paragraph**: *type here* **Fourth paragraph**: *type here*