**Modern Regression Methods: homework 1**

For this homework, you will use the data present in the *Birds* sheet of the Excel file *data\_mrm.xlsx*, which is accessible to you from the Moodle portal. This is a real-life dataset where we attempted to identify landscape properties responsible for the richness of bird communities in a montane forest.

Your task is to find out whether any (and which) landscape properties may help to predict bird species richness (*Richness*). I suggest that you log-transform the richness values, despite their range is quite limited (8 to 17). **Select** a parsimonious regression **model** including only the appropriate predictors, **based on the AIC** **criterion**. Present your employed methods, results and conclusions drawn from them, using full sentences, like in a research paper.

This homework must be submitted before the end of Friday (23:59) to be scored.

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PLACE YOUR SOLUTION, INCLUDING COMMANDS TYPED IN **R**, THEIR OUTPUT, AND YOUR TEXT (METHODS, RESULTS, INTERPRETATION) HERE:

What predicts birds species richness?

**METHODS**

-Log transformation of birds richness BECAUSE

-splom to check if what predictors seem to have the strongest relationships between Richness and the predictors

-Using the AIC to determine what is the most parminious model. It consists in comparing the AIC values of each possible model (from the null model, the predictors are added one by one).

**RESULTS**

Step: AIC=-155.96

Richness ~ Altitude + Slope

Df Sum of Sq RSS AIC

+ ForCover 1 0.055564 0.93916 -156.43

<none> 0.99472 -155.96

+ ForDens 1 0.028613 0.96611 -155.21

+ HerbCover 1 0.015682 0.97904 -154.64

- Slope 1 0.228090 1.22281 -149.08

- Altitude 1 0.265466 1.26019 -147.79

Step: AIC=-156.43

Richness ~ Altitude + Slope + ForCover

Df Sum of Sq RSS AIC

<none> 0.93916 -156.43

- ForCover 1 0.055564 0.99472 -155.96

+ HerbCover 1 0.028689 0.91047 -155.76

+ ForDens 1 0.010396 0.92876 -154.91

- Altitude 1 0.168883 1.10804 -151.32

- Slope 1 0.214035 1.15319 -149.60

**CONCLUSION**