Review Zuur 5.1 and 5.2

**Due Sunday November 27**

**Q1 (2 pts.):** In the context of a dataset (real or made up), describe the inherent conflict between using a complicated model that minimizes the unexplained variation and using a simple model that is easy to communicate.

Consider the trade off between model complexity and interpretability.

Since your answer is targeted to a non-scientist audience, you should use narrative style using a concrete example.

* **Q2 (1 pt.):** Which of the following predictor variables had slope coefficients that were significantly different from zero at a 95% confidence level? Select the correct answer(s)

1. water
2. nitrogen
3. phosphorus
4. None

* **Q3 (2 pts.):** Using the information in the model coefficient table above, calculate the expected biomass for a plant given:
* 0 mL water per week
* 0 mg nitrogen per week
* 0 mg phosphorus per week

Explain how you made the calculation.

* **Q4 (2 pts.):** Using the information in the model coefficient table above, what is the expected biomass for a plant given:
* 10 mL water per week
* 30 mg nitrogen per week
* 20 mg phosphorus per week

Explain how you made the calculation.

* **Q5 (1 pt.):** Describe the key difference between a simple linear regression and a 1-way analysis of variance.

Consider the data types/scales of the predictor and response variables.

We often present the equation for a simple linear regression model as:

*yi*=*α*+*β*1*xi*+*ϵ*

* **Q6 (1 pt.):** Identify the *deterministic* component(s) of the model equation.

We often present the equation for a simple linear regression model as:

*yi*=*α*+*β*1*xi*+*ϵ*

* **Q7 (1 pt.):** Identify the *stochastic* component(s) of the model equation.