

1. The relation of a response to an explanatory variable can be quantified in categories (categorical explanatory variable) or as a continuous function (explanatory variable on a ratio type of scale). For the following analyses, list the number of categorical explanatory variables, the number of ratio-scale explanatory variables, and the number of interaction terms.

	Categorical	Ratio-scale	Interaction
Rate of shrinkage of area covered by coral reefs.	_____	_____	_____
Two-way ANOVA.	_____	_____	_____
Goodness of fit of number of surviving colonies in 2 petri dishes each inoculated with 10 colonies.	_____	_____	_____
Analysis of growth rate in relation to temperature in five microbial cultures.	_____	_____	_____
Hierarchical ANOVA.	_____	_____	_____
Growth rate of plants at 4 levels of exposure to CO ₂ , controlled for light and temperature.	_____	_____	_____
Randomized block design.	_____	_____	_____

2a. Under the assumption of equal sprouting rates, compute the expected proportion of sprouting seeds in each of 4 plots if seed release in each plot was 80, 40, 40 , and 20 respectively.

2b. Compute the expected number of sprouting seeds in each plot if a total 45 seeds sprouted.

2c. The observed sprout numbers were 15, 12, 12, and 6 in the 4 plots.
Write a model to test the goodness of fit of observed to expected number of sprouts.
(Give names to symbols in the model).