

Exam questions SUM3011/4011a, 2009

You are to answer 3 of the following 4 questions. Try to be comprehensive but concise. The quality of your answer is more important than its quantity.

1) Suppose you have been given one year to find out, and submit a report on commuting patterns for people who work in Oslo. Specifically:

- how do people commute to work?

- what is important in their choice of transport (walking, biking, car, public transportation)?

- what is the potential for reducing the use of automobiles in commuting?

Describe and justify the research method(s) you would use, discussing the strengths and weaknesses of each.

2) What is randomisation and why is it important in natural science research? Is it equally possible, and necessary, in social sciences such as economics and anthropology?

3) Orvar Løfgren article uses the metaphor 'entrance' to describe the phase in which we "try to identify and demarcate the object of our study, to formulate questions and to look for material" and claims that this phase is of decisive importance for the rest of the study. Discuss what Løfgren means by this term, and show its relevance to interdisciplinary research drawing on articles from the curriculum to prove your points.

4) Statistics were used by Peres et al. to produce significant results. Discuss advantages and disadvantages' by using statistics in a study. How is it possible to produce significant results using statistics, but significant results which do not reflect reality?

Selected parts from the Peres et al. (2003) article:

Abstract (short version): *A comparative analysis of 23 populations of the Brazil nut tree across the Brazilian, Peruvian, and Bolivian Amazon shows that the history and intensity of Brazil nut exploitation are major determinants of population size structure.*

From the methodology: *The history of seed exploitation at each site was documented using public records, interviews with local Brazil nut collectors, and or systematic counts of fruits (...). ...surveyed and measured all trees > 10 cm in diameter at breast height. For all forest sites we compiled ranked data on forest type (reflecting canopy openness), soil nutrient availability, annual rainfall.*

From the results: *"S* explains most across of the across population variance in the relative abundance of juveniles" (R² = 0.87, F_{1,20} = 138,6, P < 0.001). (an index that measures the shape of the cumulative size distribution, high S* indicate many juveniles, while low S* indicate many juveniles)*