

# Applied Sampling

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## Course description

Applied Sampling aims to provide a practical introduction to methods of survey sampling and estimation, and is the basis of survey statistical inference. Given the importance of survey research across a range of social sciences, this course is of use to anyone interested in conducting a survey to ensure the sample obtained is the best for the research question.

This course provides an overview of sampling techniques frequently used in survey designs. This relies on applied statistical methods focusing on the design of probability samples to be used for data collection. Sample designs are driven by analytic goals of an investigator, but this is not an analysis course. In particular, this course focuses on the principles of designing and selecting samples of individuals. These principles are also discussed in terms of the effects on inference to the population of interest, the key goal of survey research.

This will include both methods for sampling the general population and methods for sampling specialist or minority populations. An introduction to several sampling design will be given, including simple random sampling, stratification, cluster sampling, systematic sampling, multistage sampling, and probability proportional to size sampling. Applications of these methods for a variety of survey designs will be discussed, and cost, sampling frames, and sampling error estimation techniques will also be addressed.

Practical exercises will be provided for participants to explore how different sample designs are done and the possible impact these designs have on survey estimates. Participants will be also encouraged discuss their own research questions and studies to identify practical sampling solutions, to make the classes more interactive and very practical.

## Software

Excel, Stata

## Prerequisites

None

## Schedule

### Day 1

Time	Topic
9-9:30	Principles and terminology in survey sampling
9:30-11	Definition of the sampling frame; Simple Random Sampling
11-11:15	Break
11:15-12:00	Simple Random Sampling (continued)
12:00-1	Stratified Sampling

### Day 2

Time	Topic
9-11	Cluster Sampling, Stratified Cluster Sampling
11-11:15	Break
11:15-11:45	Effects of Design on Estimation, Open Questions
11:45-1	PPS Sampling

## References

Course largely based on:

Kish, Leslie. *Survey Sampling*. 1965. John Wiley and Sons, Inc.: New York.  
Blair, Edward and Johnny Blair (2015). *Applied Survey Sampling*. SAGE

## Short bio

Dr. Tarek Al Baghal has a PhD in Survey Research and Methodology from the University of Nebraska, and is a Research Fellow at the Institute for Social and Economic Research, University of Essex. He is the lead questionnaire designer for Understanding Society, one of the world's largest longitudinal surveys. He has developed samples for a number of studies in a variety of contexts, including simple allocation on Understanding Society.

He has taught a number of courses to a variety of students, including Applied Sampling at the University of Nebraska (USA) and the University of Essex. He has also published a number of papers on topics relating to various areas of survey methods, and can be found here:

[https://www.researchgate.net/profile/Tarek\\_Al\\_Baghal/publications](https://www.researchgate.net/profile/Tarek_Al_Baghal/publications)