

Sampling design and interpretation of sampled data

Intended audience

Geoscientists who need to understand the principles and pitfalls of designing sampling programmes and/or interpreting sampled data.

Course objectives

After completing the course, the participants should:

- understand the key theoretical and practical principles of design-based sampling, exemplified by simple random sampling and stratified random sampling, and analysis of the resulting data to construct estimated means and their confidence intervals;
- be aware of some of the refinements available to improve the precision of design-based estimates, specifically the use of regression estimators and ranked set sampling;
- be aware of design-based methods such as multistage, clustered and nested sampling;
- understand the distinction between model-based and design-based sampling, and the circumstances in which one might be chosen rather than another;
- be aware of how to analyse data by model-based methods to estimate regional means;
- be aware of how design- and model-based sampling can be combined for monitoring spatial processes over time;
- understand how decisions on sample size requirements are made in design- and model-based sampling.

Course description

The aim of this course is to familiarize the participants with the basic issues that arise when sampling spatial variables, and analysing the data that are obtained. After the course participants should be able to implement some standard design-based sampling methods and to undertake model-based analysis of systematically sampled data. Most importantly they should be aware of some of the pitfalls in sampling design and the analysis of legacy data collected in different ways, and know when to ask for statistical input.

Course duration

3 days

Delivery mode

Classroom-based course

Course fee

£1000

Date(s)

As required

Location

The course is available at BGS's Nottingham (Keyworth) or Edinburgh training centres