

"New Developments in Survey Methodology" Course Series

Course 3: "Probability sampling vs. non-probability sampling: What should we use and why?"

Instructor: **Dr. Matthias Ganninger**, statistician and researcher at the GESIS-Leibniz Institute for the Social Sciences (Mannheim, Germany).

Date: May 30-31, 2011, from 10h00-13h00 and 14h00-17h30.

Place: Universitat Pompeu Fabra, Ciutadella Campus. Edifici Jaume I, room 20.055. Carrer de Ramón Trias Fargas 25-27 (metro Ciutadella - Villa Olímpica). Barcelona, Spain.

Short description of the course:

Besides the well-known simple random sampling designs (with and without replacement) there exists a wide range of alternative selection schemes which are used in practice. Most of them have their roots in probabilistic theory, some don't. All of them have their merits and drawbacks which must be taken into account at the planning stage as well as in the data analysis process.

There exist certain criteria which can be used to distinguish between these candidate sample designs. At the heart of these criteria lies the rationale that any sample design should be evaluated together with the estimator(s) to be used for analyses after data collection. This notion of a strategy narrows the focus of quality criteria to be applied in the evaluation to two concepts: bias and precision.

The course will focus on the interaction of diverse sample designs with commonly used estimators and useful methods to robust criteria for the selection of sampling strategies. It will reflect recent findings on the use of sample designs, weighting and variance estimation techniques. The course will help participants gain an understanding of the impact of the sample design on estimators and show pathways to achieve increased quality of their research results through practical examples.

Universitat Pompeu Fabra - Research and Expertise Centre for Survey Methodology

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Detailed course outline:**Day 1:**

1) Introduction

Overview of the emergence and development of the (very young) field of statistics and its impact on modern society.

2) Selected basic sample designs

Introduction of the sample designs most commonly used as a basis for comparison, such as simple random sampling (with and without replacement) probability proportional to size sampling, stratified random sampling, etc.

3) Unequal probability sampling

Under certain circumstances unequal probability sampling may be applied. Some relevant sample designs will be introduced and their specific merits and shortcomings will be discussed.

4) Estimation and weighting

Basic aspects of design weighting, inferential statistical techniques, simple design-based estimation methods such as the Horvitz-Thompson or the Hansen-Hurwitz estimator will be introduced and discussed.

5) Discussion

Day 2:

1) Merits and drawbacks of multi-stage sampling

Introduction of the class of multi-stage sample designs; discussion of their merits e.g. in fieldwork and their drawbacks.

2) Non-probability sample designs

A wide range of non-probability sample designs used in practical applications is discussed with a focus on quota samples.

3) Design effects in multi-stage sampling

Specific characteristics of multi-stage sample designs include the emergence of design effects. Different approaches to estimation and a priori prediction are introduced and their use in practical applications is discussed.

4) Interviewer effects in sample surveys

Related to design effects, interviewer effects emerge in all types of surveys that incorporate an interviewer. Interactions of design and interviewer effects are delineated and discussed.

5) Discussion

About the Instructor:

Dr. Matthias Ganninger received his PhD. in Political Science from the University of Trier in 2005. He currently works at the GESIS-Leibniz Institute for the Social Sciences (Mannheim, Germany), where he is Chair of the Sampling Expert Panel of the European Social Survey, among other positions. He has held positions at the German Institute for Economic Research (DIW – Berlin) and the University of Konstanz. His main research interests are in the areas of sampling design effects and census methodologies, topics in which he has given numerous courses and seminars. His work has been published in important journals such as *Biometrika* and *Survey Methodology*.

Participation:

The course is directed to anyone involved and/or interested in sampling methodology, especially experts coming from survey research commercial organizations, and students of statistics, political science and sociology. A maximum of 30 people can participate. Participants will be admitted on a first-come first-serve basis: the first 30 people who sign up and pay the registration fee will be accepted.

Registration procedure:

Please send an email to reasm@upf.edu, indicating your interest in registering for the course and including your name, institution, address, telephone and email address. As soon as we receive this email, we will send you information on how to proceed with the payment. Registration will only be considered complete when payment for the course has been received by RECSM.

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Costs:

Participants from commercial organizations: € 400

Participants working at Universities: € 200

Students (PhD, Master): € 80

Deadline for registration: May 25th, 2011.

Further information: If you have any questions about the course, its program or its registration procedure, please contact us at recsm@upf.edu.