



# JOINT PROGRAM IN SURVEY METHODOLOGY

## Introduction to Survey Estimation

**Monday, May 03, 2021 - Friday, May 14, 2021**

Workshop for JPSM, University of Maryland

### **DAVID MORGANSTEIN**

Senior Statistician and Vice President at Westat, Past President American Statistical Association

### **SUNGHEE LEE**

Research Associate at the Survey Research Center, University of Michigan

### **COURSE OBJECTIVES**

This short course provides an introductory exposure to producing estimates of population parameters from sample surveys. It will examine the uncertainty of estimates resulting from sampling, through presentation of how sampling errors of survey statistics vary as a function of sample design and weighting procedures.

The course discusses procedures for estimating descriptive statistics like means, percentages, population totals, quantiles as well as model parameters from sample surveys. It also examines statistical procedures used in comparing subgroups on attributes measured in the survey.

The course presents inferential issues that arise in moving from sample-based statistics to describing the target population of the survey. It also describes how to compute the sampling errors of survey estimates and how to make inferences from them to the population. It describes current practices in weight adjustments and in the presentation and description of estimates made from sample surveys. Practical exercises during the short course reinforce the lecture materials and handouts.

### **WHO SHOULD ATTEND**

Researchers and analysts who need to produce statistical estimates based upon data collected via complex sample surveys and who need to make inferences about those estimates. The types of estimates to be discussed include: totals, means, percentages,



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quantiles and model parameters. The elements of complex sample designs to be examined include: unequal weights, clustered, stratified and multi-stage designs.

Attendees will benefit the most after the session if they have access on their job to software that computes sampling errors for estimates from complex survey data. Such software will be needed to implement the course concepts in their work. The course will provide an overview on software options.

## THE INSTRUCTORS

**DAVID MORGANSTEIN** is a Senior Statistician and Vice President at Westat where he is the Director of its Statistical Group. He has over 30 years of experience in sample design and variance estimation. He is one of the developers of WesVar a program for computing sampling errors, and a faculty member of the Joint Program for Survey Methods. He is a fellow of the American Statistical Association and recipient of its Founders Award. He is an elected member of the International Statistical Institute.

**SUNGHEE LEE** is Research Associate Professor at the Survey Research Center, University of Michigan. She received her Ph.D. in Survey Methodology from Joint Program in Survey Methodology, University of Maryland in 2004 and has over 20 years of experience in survey research including sampling and estimations. She is an ad-hoc reviewer for Survey Methodology, Journal of Official Statistics, Public Opinion Quarterly, Journal of American Statistical Association among others. Her research interest includes sampling and data collection with rare populations.

## CALCULATOR

Attendees should have scientific calculators or similar device to use in numerical exercises.

## SPREADSHEET SOFTWARE

Registrants would find it beneficial to have a laptop or device that has spreadsheet software such as MS Excel.



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## **COURSE MATERIALS**

Registrants will be provided with a course lecture notebook.

## **COURSE SCHEDULE:**

The course will be in an Online Format from May 03 to May 14, 2021. Participants would have online access to the course packet (slides) and to the recorded lectures where is presented in 4 sections Monday - Thursday. (We would have the entire week 1 recordings available online and participants could watch them at their own pace, with a recommended viewing of 1 1/2 hours per day for each of the four days).

Friday 05/07 and 05/14 would be a 1:30 hour live group online discussion with the instructors (**10:00AM – 11:30AM EST**). Week 2 follows the same schedule as Week 1, (recorded lectures M-Th, live online group meeting Friday).

Fridays Online Live Sessions Scheduled;

### May 7, 2021

10:00-10:10: Introduction

10:10-10:50: Pointers and Q&A for Modules 1 through 5.5

10:50-11:00: Exercise 4-1

11:00-11:10: Exercise 5-1

11:10-11:30: Exercise 5-2

### May 14, 2021

10:00-10:20: Q&A From Day 1

10:20-11:00: Pointers and Q&A for Modules 6 through 10

11:00-11:10: Exercise on Jackknife method from Module 7

11:10-11:30: Exercise of Module 9

**NOTE:** Actual time spent may differ from the plan.