

WSS Short Course
Statistical Methods for Handling Missing Data

Date: Tuesday, April 17, 2018

Time: 9:00 am – 4:30 pm

Instructor: Dr. Jun Shao, University of Wisconsin-Madison

Place: Bureau of Labor Statistics

Conference rooms 1-3, 2 Massachusetts Avenue NE, Washington, DC

Course Content:

Missing data or nonrespondents exist in almost all survey problems. It creates difficulties in analyzing data, such as unbalancedness of data, loss of power or efficiency, and bias in estimation and inference when incomplete data are not suitably handled. This course will attempt to summarize some existing methods of treating incomplete data for correct and efficient statistical analysis. The course will provide an in-depth discussion of the motivation and justification of some commonly used methods with emphasize on how to make use of covariate information. The course will start with the simplest case where data are missing at random and then proceed to the more complicated and challenge problems of nonignorable nonresponse. The types of data with nonresponse range from simple univariate response to multivariate or longitudinal response with arbitrary nonresponse patterns. The problem of missing data in covariates or in both responses and covariates will also be addressed. Finally, this course covers variance estimation after handling nonrespondents.

About the Instructor:

Dr. Shao received his PhD in statistics from the University of Wisconsin-Madison in 1987. He was a faculty member at Purdue University and University of Ottawa and joined the faculty at the University of Wisconsin-Madison in January 1994. Dr. Shao became a Professor in August 1996 and served as a chair of the Department of Statistics at the University of Wisconsin at Madison in 2004-2009. He became a Fellow of the Institute of Mathematical Statistics in 1996 and a Fellow of the American Statistical Association in 1999. Starting from 1996, Dr. Shao has worked with the U.S. Census Bureau for research problems with missing data and variance estimation. Dr. Shao has published extensively in the areas of analysis of incomplete data, variance estimation in survey data, resampling methods in inference, and clinical trials.

Course Schedule:

8:15 - 9:00 Coffee, breakfast, and check in

9:00 - 9:15 Introduction & Welcome

9:15 – 9:45 Overview and Missing Data Mechanisms

9:45 – 10:30 Methods of Handling Ignorable Missing Data: Analytic Methods and Weighting

10:30 - 10:45 Break

10:45-12:15 Methods of Handling Ignorable Missing Data: Imputation and Variance Estimation

12:15 - 1:15 Lunch (provided)

1:15 - 2:30 Methods of Handling Nonignorable Missing Data

2:30 - 2:45 Break

2:45 – 3:30 Longitudinal Data

3:30 - 4:00 Missing Data in Covariates

4:00 – 4:30 Course Summary & Open Discussion

Advance registration: In addition to your RSVP here, please go to <https://www.eventbrite.com/e/wss-short-course-statistical-methods-for-handling-missing-data-tickets-42691469334> to register and pay for the class. Online registration will close on April 12, 2018; earlier if the course fills up.

Registration Fee:

Full-time students (at most 8): \$63.49 advance, \$80 at the door

WSS members: \$186.49 advance, \$200 at the door

All others: \$217.24 advance, \$240 at the door

Contact person: Yang Cheng, 301-763-3287, yang.cheng@census.gov