

SHORT COURSE

MISSING DATA

DATE 23-27 JUNE 2025

LEARNING TYPE: HYBRID & FACE-TO-FACE

FACE-TO-FACE LOCATION: WITWATERSRAND UNIVERSITY, JOHANNESBURG



SUB-SAHARAN AFRICA CONSORTIUM FOR ADVANCED BIOSTATISTICS TRAINING (SSACAB)

IN COLLABORATION WITH LONDON SCHOOL OF HYGIENE & TROPICAL MEDICINE

WITWATERSRAND UNIVERSITY AND

UNIVERSITY OF KWAZULU NATAL

SHORT COURSE MISSING DATA

Sub-Saharan Africa Consortium for Advanced Biostatistics Training (SSACAB) in collaboration with the London School of Hygiene & Tropical Medicine, the University of KwaZulu Natal and the Witwatersrand University will be offering a short course on missing data methods. Missing data frequently occurs in both observational and experimental research. They lead to a loss of statistical power, but more importantly, may introduce bias into the analysis. In this course, we adopt a principled approach to handling missing data, in which the first step is a careful consideration of suitable assumptions regarding the missing data for a given study. Based on this, appropriate statistical methods can be identified that are valid under the chosen assumptions.

The overall aim of this course is for participants to learn about how the method of multiple imputation can be used to handle missing data in statistical analyses and to understand the assumptions under which this is valid. In addition to introducing the method in more standard settings, we will explore its use in a range of more advanced situations, including in the presence of non-linearities and interactions, propensity score analysis, prognostic model development, and for performing sensitivity analyses.

WHO SHOULD APPLY?

Postgraduate students in Statistics, Biostatistics, academics and researchers whose work require the use of statistical methods to account for missing data in their research.

A strong background in statistics is required.

LEARNING OUTCOMES

- Understand the impacts of missing data on statistical inferences and assumptions about missingness mechanisms, including missing completely at random, missing at random, and missing not at random.
- Understand the assumptions under which multiple imputation can be used to provide valid inferences from a partially observed dataset, and be able to apply it appropriately using modern statistical software.
- Understand how multiple imputation can be applied in various advanced settings, including non-linearities and interactions, missing data sensitivity analysis, propensity score analysis, and prognostic model development.

COURSE OBJECTIVES

- The effects of missing data on statistical inferences
- Missingness mechanism assumptions include missing completely at random, missing at random, and missing not at random.
- Multiple imputation for missing data, based on joint models and fully conditional specification approaches, and Rubin's pooling rules.
- Multiple imputation accommodating non-linearities and interactions.
- Multiple imputation for sensitivity analysis.
- Multiple imputation in the context of propensity score analysis.
- Multiple imputation in the context of prognostic model development and deployment.

COURSE STRUCTURE

Three days of teaching and practical sessions (Mon 23rd – Wed 25th June 09h00 am – 17h00 pm SAST)

Two days consultation (Thu 26th and Fri 27th June).

The sessions will be face-to-face or on-line. We highly recommend that those who are in South Africa attend face-to-face sessions. For those attending face-to-face sessions will be provided with refreshments.

COURSE BOOK

Multiple Imputation and its Application, 2nd Edition, Wiley (it is not necessary to buy this book)

COURSE SOFTWARE

All practical sessions will use R; however we can support Stata and SAS in 1-1 discussions of research projects.

Course directors: Prof Henry Mwambi, Prof James Carpenter and Prof Jonathan Bartlett

For queries, contact Caroline Vika (Caroline.vika@wits.ac.za)

NB: Space is limited and priority will be given to applicants from SSACAB affiliated institutions

Application deadline: **10th June 2025** (The course may fill up sooner than that and applications may close early so please apply early)

Application fee: R550.00 ZAR

SHORT COURSE DAILY SCHEDULE

ASSEMBLE	09:00-09:30
LECTURE	09:30-10:30
BREAK	10:30-11:00
PRACTICAL	11:00-12:30
LUNCH BREAK	12:30-14:00
LECTURE	14:00-15:00
BREAK	15:00-15:30
PRACTICAL	15:30-17:00

SSACAB WEBSITE



Apply here