1.3.5: Statistical Tests and Models

(Asynchronous-Online)

COMING SUMMER 2025

Module "1.3.5: Statistical Tests and Models" will be posted prior to the In-Person Workshops in Summer 2025.

Session Objectives

1. Develop linear and logistic regression models.
2. (Use a survey sampling weight to generate more representative descriptive and inferential statistical values.) - Currently, this objective is under the Module 1.3.4: Missing data and sampling weight.
3. Interpret a model output.

Key points to cover:

1. Run multivariate linear regression models with R.
2. Run multivariate logistic regression models with R.
3. Include interaction terms in regression models.
4. (R packages for complex survey data (e.g., survey package)
    - R codes to generate weighted descriptive statistics and contingency tables, as well as to develop weighted linear models)
5. Interpret a model output.
6. (Compare the outputs of unweighted and weighted models.)

R Core Team. 2024. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. https://ggplot2.tidyverse.org.

Wickham, Hadley, Winston Chang, Lionel Henry, Thomas Lin Pedersen, Kohske Takahashi, Claus Wilke, Kara Woo, Hiroaki Yutani, Dewey Dunnington, and Teun van den Brand. 2024. *Ggplot2: Create Elegant Data Visualisations Using the Grammar of Graphics*. https://ggplot2.tidyverse.org.

Wickham, Hadley, Romain François, Lionel Henry, Kirill Müller, and Davis Vaughan. 2023. *Dplyr: A Grammar of Data Manipulation*. https://dplyr.tidyverse.org.