

Training-Workshop on Applications of Advanced Regression Models in Analysis of Diverse Datasets
Holiday Suites Hotel and Resort
Puerto Princesa City, Palawan, Philippines

Speaker:
Dr. John Vianne B. Murcia

April 24, 2025	Arrival of Participants
April 25, 2025	Day 1: Fundamentals and Applications of Linear and Logistic Regression Models
8:30 – 9:00 AM	Registration and Preliminaries Participants sign in, receive training materials, and are welcomed with an overview of the objectives and agenda.
9:00 – 10:30 AM	Session 1: Foundations of Regression Models <ul style="list-style-type: none">• Lecture: Simple and Multiple Linear Regression<ul style="list-style-type: none">○ Introduction to linear regression: Assumptions, diagnostics, and interpretation.○ Applications in predicting continuous outcomes using diverse datasets.• Subtopic: Introduction to Non-Parametric Quantile Regression<ul style="list-style-type: none">○ When and why to use quantile regression for non-linear relationships.
10:31 AM – 12:00 PM	<ul style="list-style-type: none">• Hands-On Session: Implementing Linear and Quantile Regression in Open-Source Software<ul style="list-style-type: none">○ Dataset import and preparation.○ Running regression models and interpreting results.○ Diagnosing and visualizing regression outputs.
12:00 – 1:00 PM	Lunch Break
1:00 – 2:30 PM	Session 2: Logistic Regression Models for Categorical Outcomes <ul style="list-style-type: none">• Lecture: Binary, Ordinal, and Multinomial Logistic Regression<ul style="list-style-type: none">○ Understanding logistic regression for binary outcomes.○ Extending to ordinal and multinomial logistic regression for multi-class problems.○ Applications in diverse datasets, such as healthcare, education, and social sciences.

2:31 – 5:00 PM **Hands-On Session: Implementing Logistic Regression Models in Open-Source Software**

- Running binary, ordinal, and multinomial logistic regression.
- Evaluating model fit (e.g., AIC, confusion matrix) and interpreting coefficients.
- Predicting probabilities and visualizing outputs.

April 26, 2025

Day 2: Hierarchical and Count Regression Models

8:45 – 9:00 AM

Registration and Preliminaries

Recap of Day 1 and setting expectations for Day 2.

9:00 – 10:30 AM

Session 3: Hierarchical Regression Models with Moderating Effects

- **Lecture: Interaction and Moderating Effects in Regression**
 - Understanding hierarchical regression and its applications.
 - Incorporating interaction terms and moderating variables in regression analysis.
 - Practical examples in behavioral sciences and policy research.

10:31 AM – 12:00 PM

Hands-On Session: Implementing Hierarchical Models in Open-Source Software

- Building hierarchical regression models.
- Adding interaction effects and visualizing moderation results.
- Interpreting R-squared changes and the significance of interactions.

12:00 – 1:00 PM

Lunch Break

1:00 – 2:30 PM

Session 4: Count Regression Models for Event Data

- **Lecture: Poisson and Negative Binomial Regression**
 - When to use count regression models for event data.
 - Understanding overdispersion and choosing between Poisson and Negative Binomial models.
 - Real-world applications in public health, criminology, and more.

2:31 – 4:30 PM

Hands-On Session: Implementing Count Regression Models in Open-Source Software

- Running Poisson and Negative Binomial regression.
- Assessing model fit and interpreting rate ratios.
- Visualizing count data and creating actionable insights.

4:31 – 5:00 PM

Awarding of Certificates