THE OHIO STATE UNIVERSITY

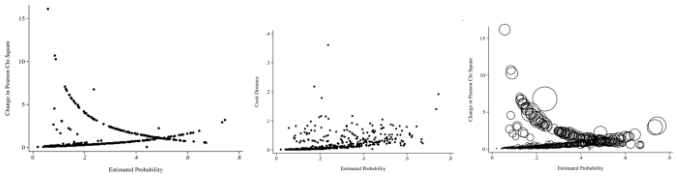
Gruppo Italiano
Per la Ricerca Clinica
In Medicina d'Urgenza

ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI · IRCCS

Linear and Logistic Regression Analysis of Epidemiologic Data

May 23rd - 27th, 2022

Scientific Director: Doctor Guido Bertolini



Stanley Lemeshow, Professor of Biostatistics, College of Public Health, The Ohio State University, Columbus, OH, USA

Rationale and Goals

Medical research increasingly depends on quantitative approaches, while physicians' decision making is becoming strictly based on the evidence of quantified data. The course aims to provide participants with insight into the principles and techniques used to produce and interpret data, by providing an introductory course in statistical modeling. At the end of this course, participants will be able to apply statistical modeling in their practice and research, to verify the reliability of published results, as well as to interpret the results. The course is a useful refresher also for those already trained in epidemiology or public health.

Faculty

Stanley Lemeshow joined The Ohio State University in 1999 as a biostatistics professor in the School of Public Health and the Department of Statistics, director of the biostatistics core of the Comprehensive Cancer Center and director of the University's Center for Biostatistics. He was appointed the Founding Dean of the Ohio State University School of Public Health in 2003 and he served in that capacity for 10 years. Prof. Lemeshow is internationally known for his expertise in biostatistics and epidemiology, with research focused on statistical modeling of medical data, sampling, health disparities and cancer prevention. He has published extensively in the applied and methodological literature and has co-authored three textbooks for John Wiley & Sons Wiley series, a leading publisher for the scientific, technical and medical communities worldwide. His textbooks are: Applied Logistic Regression (now in its 3rd Edition), Applied Survival Analysis (now in its 2nd edition) and Sampling of Populations; Methods and Applications (now in its 4th edition). In 1995, Prof. Lemeshow was elected Fellow of the American Statistical Association and was awarded the Statistics Section Award of the American Public Health Association. In 2003, Prof. Lemeshow was awarded the Wiley Lifetime Award, was elected Fellow of the American Association for the Advancement of Science (AAAS), and was selected Distinguished Graduate Alumnus (Biostatistics) by the University of North Carolina Graduate School Centennial.

Course Content

This course aims to provide theoretical and practical training for statistical modeling with particular emphasis on linear, multiple and logistic regression.

	Topics & Assignments
Monday May 23	• Review of Basic Statistical Concepts • Review of Straight Line Regression • Review of Correlation • The ANOVA Table for Straight Line Regression
Tuesday May 24	• Polynomial Regression • Multiple Regression Analysis • The Partial F-test • Dummy (or indicator) Variables • Statistical Interaction • Comparing Two Straight-line Regressions
Wednesday May 25	• The Logistic Regression Model • Estimating the Coefficients in the Logistic Model • Interpretation of Coefficients • The Multivariable Case: Statistical Adjustment
Thursday May 26	• Interaction and Confounding • Stratified Analysis via Logistic Regression • Model Building Strategies • Assessing the Scale of Continuous Covariates • Numerical Problems
Friday May 27	• Summary Measures of Goodness-of-Fit • Area Under the ROC Curve • Logistic Regression Diagnostics • Example: Estimating the Probability of Mortality of ICU Patients

Reference texts: Applied Logistic Regression, 3rd edition by Hosmer, Lemeshow and Sturdivant. Applied Regression Analysis and Other Multivariable Methods, 5th edition by Kleinbaum, Kupper, Nizam and Rosenberg

Prerequisites

The course will be taught in English. The course is open to physicians, nurses, healthcare practitioners, as well as to epidemiologists, statisticians and public health professionals with interest in data analysis and medical research. Knowledge of basic statistical concepts, as provided by introductory-level courses in statistics, is required.

Course Fee

€900

Tuition fees include course materials, course attendance, the license of the software STATA for the duration of the course and lunch. It does not include lodging, travel and other living costs.

Timetable for the Courses

Morning Lecture (part 1): 9:00-10:15
Break: 10:15-10:30
Morning Lecture (part 2): 10:30-11:45
Break: 11:45-12:00
Morning Lecture (part 3): 12:00-13:00
Lunch: 13:00-14:00
Exercises with tutors: 14:00-16:00

Application

Start of acceptance of admission requests: **1st, February, 2022**. Course registration closes on **31st, March, 2022**. Admission will be communicated by email before **4th, April, 2022** and payment will be required before **10th, April, 2022**. If the payment is not booked in our account within the mentioned timetable, the reservation for participation in the course cannot be guaranteed.

Applications are accepted by **email** to luana.nava@marionegri.it. Please attach an updated curriculum vitae.

Terms and Condition

Attendance is required. The number of participants is limited to 35. If the number of applications will exceed this limit, participants will be accepted on the basis of the date of their application (priority will be given to earlier requests) and of a review of the applicant's curriculum vitae, based on field pertinence.

Venue

The course will be taught in-person at the headquarters of the Mario Negri institute in Milan.

Aula Alessandro e Noemi Guasti
Istituto di Ricerche Farmacologiche Mario Negri IRCCS
Via Mario Negri, 2 – 20156 Milano

Accommodation

Each participant will have to take care of his/her accommodation.

Further information

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Organization

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