Course Title

Applied Event Time Data Analysis with R

Category

methodology, technology training

Target Audience

This course's intended audience includes researchers who want to gain basic exposure to analyzing time-to-event data with the ultimate goal of incorporating R into their research programs.

Prerequisites for Participants

Introductory statistics; entry level of R knowledge; a laptop.

Computer and Software Requirements

Participants are expected to bring their own laptops with R version 4.2.0 or higher

Course Description

Abstract

Event time data arise in many fields, such as biomedical studies, epidemiology, environmental sciences, engineering, and social sciences. Analyses of event time data require dedicated statistical techniques. The overarching goal for this course is to give the participants a grounding in the theory behind the commonly used methods in analyzing event time data, as well as extensive hands-on experience of their application in the \R\ software. The course will begin with the fundamental survival analysis concepts and techniques, and move on to regression analysis that covers Cox proportional hazards and accelerated failure time (AFT) models. The models will be extended to allow a cure rate and variable selection. Recently developed statistical methods that appropriately address
recurrent events will be introduced too. As all computations are to be performed in R. Familiarity with the basics of R, including object types, the use of functions, and basic visualization, is recommended. Handouts and R to perform every computation will be available to participants. After completing this course, participants will be able to recognize the characteristics of event time data, determine appropriate methods to analyze specific time-to-event data with appropriate software packages, explain statistical concepts and findings to a general scientific audience, and understand the strengths and limitations of proposed statistical methods.