Survival Analysis and Event History Modeling Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Survival Analysis and Event History Modeling are essential statistical techniques for analyzing time-to-event data across disciplines such as epidemiology, public health, engineering, social sciences, and economics. Survival Analysis and Event History Modeling Training Course is designed to equip researchers, analysts, and professionals with practical skills in modeling event occurrence and timing using real-world datasets. With the growing emphasis on data-driven decision-making and predictive modeling, learning these advanced methods has become vital in today's data science and statistical analytics landscape.

The course covers key methodologies, including Kaplan-Meier estimation, Cox Proportional Hazards models, time-dependent covariates, competing risks, and recurrent events. Through interactive modules, practical case studies, and applied statistical tools such as R and Python, participants will master the techniques to interpret, visualize, and present survival data effectively. This course is optimized for individuals who want to stay ahead in health analytics, financial risk assessment, operational research, and social sciences.

Programme Curriculum

Survival Analysis and Event History Modeling Training Course

Introduction

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Course Objectives

1. Understand the fundamental concepts of survival analysis.
2. Interpret survival and hazard functions effectively.
3. Apply Kaplan-Meier estimation for time-to-event data.
4. Fit and interpret Cox Proportional Hazards Models.
5. Use time-dependent covariates in model building.
6. Analyze competing risks and multistate models.
7. Understand recurrent event models and frailty models.
8. Handle censored and truncated data.
9. Visualize survival data using R and Python.
10. Conduct model diagnostics and assess fit.
11. Build predictive survival models using machine learning.
12. Apply models to real-world datasets from healthcare, economics, and social science.
13. Communicate survival analysis results to both technical and non-technical audiences.

Target Audiences

1. Biostatisticians and Epidemiologists
2. Data Scientists and Analysts
3. Public Health Researchers
4. Financial Risk Managers
5. Social Science Researchers
6. Actuarial Analysts
7. Clinical Trial Designers
8. PhD and Postgraduate Students in Quantitative Fields

Course Duration: 5 days

Course Modules

Module 1: Introduction to Survival Analysis

- Defining survival and event history data
- Types of censoring and truncation
- Survival and hazard functions
- Overview of use cases in research and industry
- Tools: R and Python setup
- **Case Study**: Patient survival times post-treatment

Module 2: Kaplan-Meier Estimation

- Constructing Kaplan-Meier curves
- Calculating survival probabilities
- Log-rank test for group comparison
- Stratification techniques
- Plotting and interpreting survival curves in R
- **Case Study**: Cancer survival analysis by gender

Module 3: Cox Proportional Hazards Model

- Assumptions of the Cox model
- Model building and interpretation
- Time-varying covariates
- Checking proportional hazards assumption
- Implementation in R and Python
- **Case Study**: Predicting employee retention time

Module 4: Time-Dependent Covariates

- Incorporating time-varying predictors
- Advanced survival modeling techniques
- Lagged variables and interaction terms
- Time-split data methods
- Visualizing covariate effects
- **Case Study**: Blood pressure changes over treatment time

Module 5: Competing Risks and Multistate Models

- Introduction to competing risks framework
- Cumulative incidence functions
- Transition intensity in multistate models
- Cause-specific vs subdistribution hazards
- Applications in clinical trials
- **Case Study**: ICU discharge vs mortality modeling

Module 6: Recurrent Event Models

- Event recurrence and frailty modeling
- Gap time vs total time models
- Counting process notation
- Joint frailty models for clustered data
- Robust variance estimation
- **Case Study**: Hospital readmissions after surgery

Module 7: Predictive Modeling & Machine Learning

- Survival trees and random survival forests
- Gradient boosting for censored data
- Model evaluation: Brier score, C-index
- Cross-validation for survival data
- Feature importance analysis
- **Case Study**: Predictive modeling of loan default time

Module 8: Communication, Interpretation, and Reporting

- Data visualization and storytelling
- Survival dashboards in R Shiny
- Presenting findings to stakeholders
- Reporting standards and best practices
- Ethical considerations in survival modeling
- **Case Study**: Communicating cancer survival trends to policy makers

Training Methodology

- Instructor-led interactive sessions

- Real-world dataset analysis using R/Python
- Group exercises and discussion
- Hands-on labs and assignments
- Module-based case study presentations
- Pre/post-course assessments to measure learning

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com