



ROLLINS
SCHOOL OF
PUBLIC
HEALTH
EMORY

DEPARTMENT: Biostatistics & Bioinformatics
COURSE NUMBER: 722 **SECTION NUMBER:** 000 **SEMESTER:**
CREDIT HOURS: 2
COURSE TITLE: Advanced Survival Analysis

INSTRUCTOR NAME

Eugene Huang, Ph.D.

INSTRUCTOR CONTACT INFORMATION

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SCHOOL ADDRESS OR MAILBOX LOCATION: GCR 3rd floor

OFFICE HOURS

after class on Mondays or by appointment

COURSE DESCRIPTION (3-4 Sentences)

This course provides an introduction and motivation for the analysis of censored survival data, building on counting processes and martingale concepts. The focus is on nonparametric survival distribution estimators, weighted log-rank test statistics, and semiparametric proportional hazards regression methods. Additional special topics are also presented, including accelerated failure time model, semiparametric linear transformation models, multivariate failure time data, and models accommodating evolving covariate-effects.

EVALUATION

Homework, 70%; Course project, 30%

ACADEMIC HONOR CODE

The RSPH requires that all material submitted by a student in fulfilling his or her academic course of study must be the original work of the student.

LEARNING OBJECTIVES OR COMPETENCIES OF THE COURSE

Understand the theory of counting processes and martingales, and how they are related to survival methodology.

Study finite- and large-sample properties of classical survival analysis methods, including the Nelson-Aalen estimator, Kaplan-Meier estimator, weighted log-rank test, and Cox regression.

Learn latest developments in survival analysis, including the accelerated failure time model, semiparametric linear transformation models, and semiparametric approaches to multivariate failure time data.

Use and develop statistical software for data analysis.

LEARNING OBJECTIVES OR COMPETENCIES FOR THE DEPARTMENT OR PROGRAM TO WHICH THE COURSE CONTRIBUTES

Apply statistical theory and methods to time-to-event data in addressing medical and public health problems

Conduct complex statistical analyses for survival studies

Develop new theory and methods as needed to address public health and medical problems