

Public Health: Biostatistics 605
(Cross-listed as Biostatistics 605)
4 credit hours

Prof. M. L. Moeschberger

Sessions

- 1-3 I. Introduction
 - A. Examples of typical data sets encountered in public health and biomedical applications
 - B. Basic parameters to which inference is to be made
 - C. Discussion of censoring and truncation

- 4-6 II. Estimation of summary survival statistics based upon censored or truncated data
 - A. Survival function
 - B. Cumulative hazard rate
 - C. Median and mean
 - D. Pointwise confidence intervals and confidence bands

- 7-10 III. Hypothesis testing
 - A. One, two, and K sample tests based on comparing the integrated difference between the observed and expected hazard rate (these tests include the log rank test and the generalized Wilcoxon test)
 - B. Tests for grouped data
 - C. Tests based on a comparison of the distance between the hypothesized and estimated survival function.

- 11 Midterm exam

- 12-20 IV. Regression Analysis for censored or truncated data.
 - A. Proportional hazards regression
 - B. Time dependent covariates (testing for proportional hazards)
 - C. Wald, score, and likelihood ratio tests for covariate effects
 - D. Model building
 - E. Estimation of the survival function
 - F. Stratified proportional hazards models
 - G. Time dependent covariates
 - H. Model checking and diagnostics

Final Exam

This course will utilize statistical packages, either SAS, STATA, SPSS or S-Plus, as a tool in performing analyses on biological, medical and community health data bases.

Textbook: Klein, J.P. and Moeschberger, M. L. (2003) Survival Analysis: Techniques for Censored and Truncated Data, Second Edition, Springer-Verlag, New York.

Supplements: Collett, D. (1994) Modelling Survival Data in Medical Research, Chapman and Hall, New York.
Harris, Eugene and Albert Adelin (1991) Survivorship Analysis for Clinical Studies. Marcel Dckker, New York.
Hosmer, David W. and Lemeshow, Stanley (1999) Applied Survival Analysis. Wiley, New York.
Kalbfleisch, John D. and Prentice, Ross (2002) The Statistical Analysis of Failure Time Data. Wiley, New York.
Kleinbaum, David G. (1996) Survival Analysis: A Self-Learning Text. Springer-Verlag, New York
Lawless, Jerald F. (2003) Statistical Models and Methods for Lifetime Data. Wiley, New York.
Maller, Ross and Zhou, Xian (1996) Survival Analysis with Long-Term Survivors. Wiley, New York.
Miller, Rupert G. Jr. (1981) Survival Analysis. Wiley, New York.
Parmar, Mahesh K.B. and Machin, David (1995). Survival Analysis. Wiley, New York.

Grading:	Homework	20%
	Midterm exam	25%
	Reports	25%
	Final Exam	30%

For the reports the student is required to perform a thorough analysis of a data set and write up a paper which is at the publication level.

Office Hours: S-L B-104 Tuesdays and Thursdays 3:00-4:00pm., Wednesdays 1:00-2:00pm or by appointment at moeschberger.1@osu.edu or 293-3713.