

Revised January 4, 2007

PM 571: Applied Logistic Regression

Instructor:

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Course Objectives:

The aim of this course is to provide a focused introduction to the logistic regression model, emphasizing practical data analysis techniques. Topics include: interpretation of simple & multiple logistic regression models, interaction & confounding, model building techniques, goodness of fit, diagnostics, multinomial & ordinal logistic regression, correlated data, and exact methods. At the end of the course students should be proficient at analyzing epidemiologic data using logistic models.

Prerequisites:

Students should have a solid foundation in linear regression methodology and contingency table analysis, and should be proficient in at least one statistical package (eg. SAS, Stata, SPSS).

Specific course requirements:

PM 512: Introduction to Epidemiologic Methods
PM 511A: Data Analysis
and permission of instructor

Required text:

Hosmer DW, Lemeshow S. Applied logistic regression, 2nd ed. New York: John Wiley & Sons, Inc, 2000. ISBN 0-471-35632-8.

Software:

Stata Statistical Software is available in the Biostatistics Computing Lab. A personal license (optional) can be purchased on main campus at a discounted academic rate.

Class format:

The class will consist of one 3 hour lecture/discussion session per week. Homeworks are due at the beginning of class one week after the day that they were assigned. Students should be prepared to discuss results of their homework during class. The lowest homework grade will be dropped. Late homeworks will not be accepted.

Grading:

Exam 1	20%
Exam 2	20%
Homework	20%
Final Exam	40%

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Fall 2004

Date	Topic	Hosmer & Lemeshow, 2nd ed: Reading	Homework
01/08	Introduction to the LR model	1.1-1.4, 1.6	Ch 1: #1-2 (omit part d)
01/15	MLK Day Holiday		
01/22	Multiple LR Interpreting coefficients (dichotomous X)	2.1-2.5 3.1-3.2	Ch 2: #1 (omit c) Ch 3:#1a-1b
01/29	Interpreting LR coefficients (polychotomous & continuous X) Interaction & Confounding	3.3-3.5 3.6-3.9	Ch 3: #1c-e Ch 3: #1f-g
02/05	Model-building strategies	4.1-4.3	Ch 4: #1,3-4 (For #4: LowBWT only)
02/12	Exam Ch 1-3		
02/19	President's Day Holiday		
02/26	Numerical problems	4.5	Ch 4: #2
03/05	Goodness of fit; diagnostics	5.1-5.2.2, 5.3	Ch 5: #1-2
03/12	Spring Break		
03/19	External Validation; Classification	5.2.3-5.2.4; 5.4	Handout
03/26	Interpretation & presentation of results	5.5	Ch 5: #4-8
04/02	Matched case-control studies	7.1-7.1	Ch 7: #1-2
04/09	Exam Ch 4-5		
04/16	Multinomial & Ordinal LR	8.1-8.2	Ch 8: #1-4
04/23	Correlated data	8.3	Ch 8: #5-7
05/07	Final Exam		