HRP261/STA261- Intermediate biostatistics-
Analysis of discrete data in Epidemiology

Winter 2005:
Mon 1:15-2:45, Wed 1:15-2:45
HRP Redwood Building T138
(Computer labs are held in M202)
Class website: www.stanford.edu/~kcobb/hrp261

Instructors:

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Class Statement:
This course is designed to provide a working knowledge of statistical methods suitable for data
with discrete response values. Emphasis will be on epidemiological applications.

Assignments/Grading:
3 Problem Sets.........................60%
In-Class Final Exam...............40%

Required Books:
Agresti (1996) "An Introduction to Categorical Data Analysis"

Other recommended books/references:
Breslow and Day Vol I: the analysis of case control studies
Fienberg- "Analysis of cross-classified data"
Kelsey, Whittemore, Thompson, Evans (1996)- "Methods in Observational Epidemiology"
Gordis, L. "Epidemiology"
Schesselman- "Case-control studies: design, conduct, analysis"
Kleinbaum, Kupper, Morgenstern- "Epidemiologic research: principles and quantitative
methods"
Selvin, S.- Statistical analysis of Epidemiological data"
Hosmer and Lemeshow- "Applied logistic regression"
Clayton and Hills- "Statistical methods in epidemiology"

Statistical Computing: Any statistical package may be used for the assignments, though
emphasis will be placed on SAS.
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<th>Jan</th>
<th>Monday 1:15-2:45</th>
<th>Wednesday 1:15-2:45</th>
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| 5th | Logistics/course info.  
Topics: Introduction to observational epidemiologic studies; overview of study designs and measures of association  
Reading: *Agresti* chapter 1 | 12th  
**LAB ONE** (M202): SAS orientation; PROC FREQ  
*Agresti* chapter 2  
**Problem set 1- ASSIGNED** |
| 10th | Topics: 2x2 tables; comparison of proportions, Chi-square tests, the odds ratio, and their relationships; Fisher’s exact test; diagnostic testing  
Reading: *Agresti* chapter 2 | 12th  
**LAB ONE** (M202): SAS orientation; PROC FREQ  
*Agresti* chapter 2  
**Problem set 1- ASSIGNED** |
| 17th | HOLIDAY/NO CLASS | 19th  
Topics: Confounding and effect modification in the context of series of 2x2 tables; the Mantel-Haenszel summary odds ratio; statistical tests of homogeneity and independence  
Reading: *Agresti* chapter 3  
**Problem set 1- DUE** |
| 24th | Topics: matched data and McNemar’s test  
Reading: *Agresti* chapter 9 | 26th  
**LAB TWO**: PROC FREQ, SAS MACROS  
Reading: *Agresti* chapters 3, 9  
**Problem set 2- ASSIGNED** |
| 31st | Topic: Introduction to Logistic Regression  
Reading: *Agresti* chapter 4-5 | Feb 2nd  
**LAB THREE** (M202): PROC GENMOD, PROC LOGISTIC  
Reading: *Allison* chapter 2  
**Problem set 2- DUE** |
| Feb | 7th | Topic: Logistic Regression II; Conditional logistic regression  
Reading: *Agresti* chapter 5 |
| 14th | Topics: Logistic Regression, model building  
Reading: TBA | 16th  
Topics: Logistic Regression, model building  
Reading: TBA  
**Problem set 3- DUE** |
| 21st | HOLIDAY/NO CLASS | 23rd  
Topics: TBA  
Reading: TBA |
| 28th | Topics: TBA  
Reading: TBA | March 2nd  
Topics: TBA  
Reading: TBA |
| Mar | 7th | Topics: TBA  
Reading: TBA |
| 9th | REVIEW | **March 14-18 Final Exams: FINALEXAM TIME TBA** |