

**SAN DIEGO STATE UNIVERSITY**  
**Graduate School of Public Health**  
**Division of Epidemiology and Biostatistics**

**PH 623: Epidemiological Methods (3.0 units)**  
**Spring 2006**

**Day: Monday**  
**Time: 4:00pm-6:40pm**

**Place: SH339**  
**Schedule #: 25896**

**Instructor: Rick Shaffer, Ph.D., MPH**  
**Office: PSFA 185A**  
**Office Hours: Tuesday 1-3 pm**  
**Office Phone: 594-3452**  
**E-mail: rshaffer@mail.sdsu.edu**

**REQUIRED TEXTS:**

- Rothman, K.J. and Greenland, S., *Modern Epidemiology*, 2nd ed., 1998.
- Gordis, Leon. *Epidemiology*. 3<sup>rd</sup> Ed. Philadelphia: W.B. Saunders Co.,
- PH 623 reader at Cal Copy

**GRADING POLICY:**

**Basis of Grade:**

Quizzes and Assignments	25%
Data Set Projects	30%
Injury project	20%
Outbreak	10%
Group Presentations & Debate	20%
Final exam	25%

**Grading Standards and Interpretation of Grades:**

- A = Superior (93-100)
- A- = 90-92
- B+ = 88-89
- B = Adequate (80-87)
- C = Less than adequate (60-79)
- F = Fail (<60)

**Learning Objectives**

Upon the completion of this course, student should:

1. Have a thorough knowledge and demonstrate a practical understanding of the study designs used in epidemiology.
2. Be able to critically analyze the methodology and results from published epidemiologic manuscript.
3. Be able to calculate and interpret measures of association and risk from epidemiologic studies.
4. Describe the effects of design bias on the results of epidemiologic studies.
5. Be able to calculate and interpret common methods for the adjustment for confounding in the analysis of epidemiologic studies.

6. Determine the appropriate use of logistic regression in epidemiologic studies and interpret the results of this type of mathematical modeling.

7. Understand the appropriate use and interpretation of the analysis of matched data.

**Structure of Debates:** Total time limit **30 minutes**  
Opening statement 8 minutes for each side  
Rebuttal time 3 minutes for each side  
Class discussion and questions: remaining time

**Structure of  
Manuscript review  
for Presentations:**

Total time limit **10 minutes**  
One person makes entire presentation

**Address methods of paper ONLY!!!**  
**The purpose of this presentation is NOT**  
**to discuss subject of the paper!!**

Statement of study purpose  
Describe study design  
Describe study population  
Describe analysis used  
Are results appropriate for purpose?  
Would this be your design of choice?

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## Course schedule:

**Aug 29:** Course outline  
Definitions  
Ethics in Epidemiology  
Fundamentals of Epidemiologic Analysis  
**Assignment:** Infant Mortality Exercise. **Due Sep 19**

**Sep 5:**

<i>Preparation:</i>	<i>Gordis Chap 10 &amp; 20</i> <i>Rothman Chap 12, 13, and 23</i> <i>Reference #1 &amp; #2</i>
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Fundamentals of Analysis (Cont)  
Cross sectional study design  
Ecological study design  
Retrospective design

Sep 12: Meeting to work in presentation groups

Sep 19: **Due:** Infant Mortality Exercise

<i>Preparation:</i> Gordis Chaps 9 Rothman Chaps 6 & 7
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Discussion of Outbreak Project: **Due Oct 17**  
Introduction to EpiInfo  
Prospective design  
Historical Prospective design

Sep 26:

<i>Preparation:</i> Gordis Chaps 7 & 8 References 3 to 6 Presentation Article #1 & #2
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**Presentation** Article #1: Group 8  
**Presentation** Article #2: Group 7

**Debate:** Use of P-values vs. Confidence Interval  
Group 1 argues for p-values & Group 2 for use of CI  
Community trials  
Outcomes Analysis

**Assignment:** What design is this? One paragraph on the design of reference #7 **Due Oct 3**

Oct 3:

**DUE:** What Design is this?

<i>Preparation:</i> Rothman Chap 26 References #6 & #7 Presentation Article #3 & #4
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**Debate:** Categorical vs. Continuous use of data  
Group 3 argue for categorization of data & Group 4 use continuous data as continuous

**Presentation** Article #3: Group 5  
**Presentation** Article #4: Group 6

What is the design?  
Handling Data  
Introduction of Injury Project Cohort: **Due Nov 28**

Oct 10:

<i>Preparation:</i> Rothman Chaps 8 & 9 Presentation Article #5 & #6
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**Presentation** Article #5: Group 4  
**Presentation** Article #6: Group 3

Sample Size

Oct 17: **Due: OUTBREAK PROJECT**

<i>Preparation:</i> Rothman Chap 14 & 15 & 16 References #8 to #12
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**Debate:** Use AR vs RR for the measure of association  
Group 7 argues for use of AR & Group 8 argues for RR

Confounding  
Adjustment for Confounding  
Homogeneity

**Assignment:** Adjustment exercise. **Due Oct 24**

Oct 24: **DUE: Adjustment exercise**

<i>Preparation:</i> Rothman Chaps 20 & 21 References #13 to #16
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**Debate:** Controlling for confounding: Matching vs. analysis  
Group 5 argues control by matching & Group 6 argues against matching and for control with analysis

Logistic regression

**Assignment:** Logistic Regression. **Due Oct 31**

Oct 31: **Due: Logistic Regression Assignment**

<i>Preparation:</i> Rothman Chap 10
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Comparison of adjustment methods  
Matched analysis

**Assignment:** Matched analysis. **Due Nov 7**

Nov 7: **DUE: Matched assignment**

<i>Preparation:</i> Gordis Chap 14 References #17 to #20 Presentation Articles #7 & #8
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**Presentation Article #7:** Group 2

**Presentation Article #8:** Group 1

Assessing and avoiding bias in design and performance

Nov 14:

<i>Preparation:</i> Gordis Chap 14 References #17 to #21
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Bias (continued)  
Epidemiology and the Menace of Daily

Nov 28: **DUE: Injury Project**

Study Design Implementation

**Dec 5:**

<i>Preparation:</i> <i>Reference #22</i>
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Discussion of projects  
Writing for epidemiology  
Course review

**Dec 12:**

**Final Exam**