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

PH 602  Biostatistics  3 units  Fall 2010

<table>
<thead>
<tr>
<th>Section</th>
<th>Day</th>
<th>Time</th>
<th>Location</th>
<th>Schedule No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>M</td>
<td>1:00p – 3:40p</td>
<td>HH 222</td>
<td>22291</td>
</tr>
</tbody>
</table>

Instructor: Hector Lemus, DrPH  
Office location: Hepner Hall 105  
Office phone: (619) 594-1270  
E-mail: hlemus@mail.sdsu.edu

Office hours: By Appointment

Blackboard:  
During the semester, course-related materials such as announcements, homework solutions, and sample exams will be posted on Blackboard. Please check regularly for new materials.

Required texts:  
Alcaraz, “PH 602 Lecture Notes”, Fall 2010. (Lecture notes should be brought to every class meeting.)

Calculators:  
Students will need a scientific calculator capable of performing the basic arithmetic operations, in addition should have at least the following functions: square root, $y^x$, ln, and $e^x$.

Grading System:

<table>
<thead>
<tr>
<th>Exam</th>
<th>Percentage</th>
<th>93 – 100 = A</th>
<th>73 – 77 = C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam I:</td>
<td>25%</td>
<td></td>
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<tr>
<td>Exam II:</td>
<td>25%</td>
<td>90 – 93 = A–</td>
<td>70 – 73 = C–</td>
</tr>
<tr>
<td>Final Exam:</td>
<td>50%</td>
<td>87 – 90 = B+</td>
<td>67 – 70 = D+</td>
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<tr>
<td></td>
<td></td>
<td>83 – 87 = B</td>
<td>63 – 67 = D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80 – 83 = B–</td>
<td>60 – 63 = D–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>77 – 80 = C+</td>
<td>0 – 60 = F</td>
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Exams:  
All exams will be in-class on the following dates. The final exam will have a take-home component due, Dec 13.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Date</th>
<th>Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>10/04/10</td>
<td>Ch 3 - 6</td>
</tr>
<tr>
<td>II</td>
<td>11/15/10</td>
<td>Ch 7–10</td>
</tr>
<tr>
<td>Final</td>
<td>12/06/10</td>
<td>Comprehensive</td>
</tr>
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</table>

Academic Ethics:  
SDSU has a strict code of ethical conduct which students are expected to follow. See [http://csrr.sdsu.edu/conduct1.html](http://csrr.sdsu.edu/conduct1.html) for details. In particular, cheating on the exams will not be tolerated. You may not work together on the exams, may not copy answers from other students, and may not allow other students to copy your answers. Anyone caught cheating will face disciplinary action.

Exercises:  
Exercises will include problems assigned from the text or from other sources. Although the exercises will not be graded, you are expected to complete them. The exam problems are similar to those in the exercises and, therefore, it is to your benefit to work the exercises. Solutions will be posted on Blackboard. If time permits, some exercises may be discussed in class.
**Attendance/Punctuality:**
While attendance is not required except for exam dates, students are strongly encouraged to attend every class meeting and to be punctual. On exam dates, the exam will start at 1:00pm. Those who arrive late on exam dates will not be allowed to work past the end time to complete their exams.

**Prerequisite:**
Passing the competency exam in basic statistical methods or successful completion of STAT 119 or STAT 250 or an approved basic statistics course within the past three years. Students must complete the prerequisite prior to enrollment.

**Background:**
Students are expected to know descriptive statistics (Ch 2, Rosner) and, therefore, this material will not be covered in the course. Students should be familiar with the following topics: basic concepts of probability (3.1 – 3.6, Rosner), the binomial distribution (4.8 – 4.9), the normal distribution (5.3 – 5.4), basic concepts of estimation (6.1 – 6.3), and basic concepts of hypothesis testing (7.1 – 7.2). These topics will be reviewed in the lectures; however, extensive discussions of this material will not be pursued.

**Goals of the Course:**
The student will learn basic biostatistical methods used in biomedical and public health research. Upon the completion of this course the student should be able to apply basic biostatistical techniques to the analysis of research data and to critically review papers and journal articles that use statistics.

**Learning Objectives:**
In this course, students will learn basic biostatistical methods used in biomedical and public health research. Students will be able to recognize and apply the appropriate biostatistical procedures to the analysis of health-related studies. Students will learn

1. To recognize the appropriate use of the binomial, normal, Student's t, chi-square and F distributions in estimation and hypothesis testing.

2. To describe the relationship between populations and samples, and the crucial role that random sampling plays in statistics.

3. To estimate such parameters as means, variances, and proportions, and to test hypotheses about these parameters (confidence intervals, one-sample test for proportion, one-sample t-test, two-sample t-test, paired t-test).

4. To apply nonparametric tests (Wilcoxon signed-rank test, Wilcoxon rank-sum test) when the underlying distributional assumptions are not met.

5. To assess the association—through relative risk or odds ratio estimation and through hypothesis testing (contingency tables)—between two variables when both variables represent groupings into categories or classes.

6. To understand the appropriate use of simple linear regression and correlation, and to estimate parameters and test hypotheses about linear relationships.

7. To complete a one-way analysis of variance model for comparing three or more means, and to describe procedures for performing multiple pairwise comparisons among these means.