BIOS506 Biostatistical Methods I  
Fall 2010

Instructor: Mike Lynn, MS  
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Office: Grace Crum Rollins Bldg, Room 342  
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Fax: 404-727-1370  
Email: mlynn@emory.edu

TA: Xin (Lucy) Lu  
Office: Crum Rollins Bldg, Room 311  
Office Hours: Mon 11:45 – 12:45  
Email: xlu28@emory.edu

Class:  
Tuesday and Thursday, 1-2:50 pm - CNR 1055

Textbook  

Evaluation:  
Exam I: 20%  
Exam II: 20%  
Exam III: 25%  
Homework: 20%  
Data Analysis Project: 15%

Approximate Grading Scale:  
A = ≥95;  
A- = 92 - <95;  
B+ = 89 - <92;  
B = 85 - <89;  
B- = 80 - <85;  
C = 70 - <80;  
F = <70.

Exams:  
Exams will be in-class and will be open-book and open-notes. Bring a handheld calculator to the exams. The Exam III will stress material covered at the end of the course, but could include material covered at anytime during the semester. Make-up exams can only be given for emergencies.

Homework:  
Homework will be assigned on a regular basis and will be due on the indicated date, usually one week after the date the homework is assigned. Late homework can only be accepted in emergencies. Answer keys will be available after the due date. Not all problems will be graded, but some points may be deducted if all problems are not worked. There will be approximately 16 homework assignments. Each homework assignment is worth 10 points. At the end of the semester, the lowest homework grade will be dropped before determining the homework average.

Data Analysis Project:  
The data analysis project will be an exercise to put into practice what you have learned. You will be asked to prepare a short report (max 8 pages without tables or figures) describing the study and your analysis. There is a separate handout describing the requirements for the project.

Class Handouts:  
I will lecture primarily from displayed materials as opposed to writing on the board. I will hand out a copy so that you won’t have to copy down that material. Other handouts will include Minitab and SAS documentation and material on statistical methods not covered in your textbook. I suggest you get a 3 inch notebook. I will make the handouts available on Blackboard.
Software: Minitab Version 15 will be the primarily software tool. The Statistical Analysis System (SAS) commands for the methods discussed will also be shown. Both software packages are available through a web browser connected to the RSPH Desktop. To find out how to use RSPH Desktop, see the following website: 
http://www.sph.emory.edu/cms/about/information_technology/environment/rsph_desktop.html

This site can also be reached from the RSPH website (www.sph.emory.edu) by navigating as follows:

About RSPH > Information Technology > Computing Environment > RSPH Desktop

Class Network Folder: Data files for class examples, homework assignments, and the project are stored in a folder for the class on a network drive accessible from any of the computers in RSPH, through an Emory VPN connection or through the RSPH Desktop. The network drive and folder are: S:\course\BIOS506. The files will also be available on Blackboard.

Communication: Class announcements and other materials will be posted on the Emory Blackboard Server accessible at http://classes.emory.edu. I will send an email when I post new material so that it will not be necessary for you to constantly check Blackboard to see if something new is out there.

Getting Help: The best way to contact me is by email. I will have an office hour each week when you can drop-in and find me. If you need to visit with me at a time other than the office hour, then contact me by email or phone and setup an appointment. I don’t mind answering questions at other times, but I have lots of meetings and deadlines and I may be away from my office or I may have to say that I can’t talk at that moment. The TA will have a weekly office hour or you can arrange for an appointment at another time.

If you are having trouble, don’t wait until things are going badly to contact me. This course continuously builds on previous material and you will have an easier time if you don’t get behind.

Student Honor Code The School of Public Health requires that all material submitted by a student in fulfilling his or her academic course of study must be the original work of the student.

For this course, students are expected to strictly adhere to this policy for the Exams and the Data Analysis Project. Students are encouraged to discuss the homework assignments with each other. However, the material turned in to fulfill the homework assignment should be the individual student’s work and not a copy of another student’s work.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Textbook</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/31 - 9/2</td>
<td>Class Organization, Descriptive Statistics and Graphics</td>
<td>Chapters 2-3</td>
</tr>
<tr>
<td>9/7 - 9/9</td>
<td>Probability, Probability Distributions (Normal, Binomial, Poisson)</td>
<td>Chapters 4-5</td>
</tr>
<tr>
<td>9/14 - 9/16</td>
<td>Populations and Samples, Estimation for the Mean and Variance</td>
<td>Chapter 6, pg 166-201</td>
</tr>
<tr>
<td>9/21 - 9/23</td>
<td>Estimation for the Binomial and Poisson Distributions</td>
<td>Chapter 6, pg 201-216</td>
</tr>
<tr>
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<td>One Sample Hypothesis Testing for the Mean</td>
<td>Chapter 7, pg 226-259</td>
</tr>
<tr>
<td>9/28 - 9/30</td>
<td>One Sample Hypothesis Testing for the Mean (Continued)</td>
<td>Chapter 7, pg 226-259</td>
</tr>
<tr>
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<td>One Sample Hypothesis Testing for Binomial and Poisson Distributions</td>
<td>Chapter 7, pg 270-282</td>
</tr>
<tr>
<td>10/5 - 10/7</td>
<td>Two Sample Hypothesis Test Comparing Means (Independent Samples)</td>
<td>Chapter 8, pg 304-334</td>
</tr>
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<td>Exam 1</td>
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<td>10/12 - 10/14</td>
<td>Fall Break</td>
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<tr>
<td></td>
<td>Two Sample Hypothesis Test Comparing Means (Independent Samples)</td>
<td>Chapter 8, pg 304-334</td>
</tr>
<tr>
<td></td>
<td>(Continued)</td>
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<tr>
<td>10/19 - 10/21</td>
<td>Two Sample Hypothesis Test Comparing Means (Paired Samples)</td>
<td>Chapter 8, pg 296-304</td>
</tr>
<tr>
<td></td>
<td>Nonparametric Methods</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>10/26 - 10/28</td>
<td>Nonparametric Methods (Continued)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two Sample Hypothesis Test Comparing Binomial Proportions</td>
<td>Chapter 10, pg 385-402</td>
</tr>
<tr>
<td>11/2 - 11/4</td>
<td>Exam II</td>
<td>Chapter 10, pg 416-426</td>
</tr>
<tr>
<td></td>
<td>Two Sample Hypothesis Test Comparing Binomial Proportions (Continued)</td>
<td>Chapter 10, pg 385-402</td>
</tr>
<tr>
<td>11/9 - 11/11</td>
<td>Fisher’s Exact Test, Compare Binomial Proportions in Matched Samples</td>
<td>Chapter 10, pg 402-416</td>
</tr>
<tr>
<td></td>
<td>Contingency Tables</td>
<td>Chapter 10, pg 426-438</td>
</tr>
<tr>
<td>11/16 - 11/18</td>
<td>Simple Linear Regression - Introduction</td>
<td>Chapter 11, pg 464-473</td>
</tr>
<tr>
<td>11/23 - 11/25</td>
<td>Simple Linear Regression - Estimation and Inferences</td>
<td>Chapter 11, pg 473-510</td>
</tr>
<tr>
<td></td>
<td>Thanksgiving</td>
<td>Handouts</td>
</tr>
<tr>
<td>11/30 - 12/2</td>
<td>Simple Linear Regression - Diagnostics</td>
<td>Handouts</td>
</tr>
<tr>
<td>12/7 - 12/9</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exam 3</td>
<td></td>
</tr>
</tbody>
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DEPARTMENT: Biostatistics
COURSE NUMBER: 506
CREDIT HOURS: 4
COURSE TITLE: Biostatistical Methods I

INSTRUCTOR NAME  Michael J. Lynn

INSTRUCTOR CONTACT INFORMATION
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PHONE: 404-727-7695
SCHOOL ADDRESS OR MAILBOX LOCATION: Room 342, Grace Crum Rollins Building
OFFICE HOURS TBA

COURSE DESCRIPTION (3-4 Sentences)
This course is a mathematically sophisticated introduction to the concepts and methods of biostatistical data analysis. The topics include descriptive statistics; probability; detailed development of the binomial, Poisson and normal distributions; sampling distributions; point and confidence interval estimation; hypothesis testing; power and sample size estimation; a variety of one- and two-sample parametric and non-parametric methods for analyzing continuous or discrete data and simple linear regression. The Minitab and SAS statistical software packages are used to illustrate concepts by way of computer simulations and to perform statistical description and analysis of data sets.

EVALUATION
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The data analysis project will be an exercise to put into practice what you have learned. You will be asked to prepare a short report (max 8 pages of text) describing the study and your analysis.

ACADEMIC HONOR CODE
The RSPH requires that all material submitted by a student in fulfilling his or her academic course of study must be the original work of the student.
LEARNING OBJECTIVES OR COMPETENCIES OF THE COURSE

The goal of the course is for the student to acquire a firm grasp of the concepts underlying the biostatistical methods presented and for the student to become proficient in applying those methods to the analysis of data. This will enable the student to:

Identify appropriate statistical designs for medical and public health research.

Perform power analyses and select appropriate sample sizes for medical and public health studies.

Conduct appropriate statistical analyses for a broad range of applications.

LEARNING OBJECTIVES OR COMPETENCIES FOR THE DEPARTMENT OR PROGRAM TO WHICH THE COURSE CONTRIBUTES

This course contributes to the following competencies of the Department of Biostatistics:

Apply existing statistical theory to a broad range of medical or public health problems.

Conduct of appropriate statistical analyses for a broad range of applications.

Assist in teaching statistical theory or statistical methodology to undergraduate or masters level students.

Train or supervise others to conduct appropriate statistical analyses in a broad range of applications.

Identify appropriate statistical designs for medical and public health research.

Perform power analyses and select appropriate sample sizes for medical and public health studies.

Conduct appropriate statistical analyses.

Communicate the results of statistical studies both orally and in writing to senior statisticians and other investigators.