

**University of Florida College of Public Health and Health Professions
PHC 6050: Statistical Methods for Health Sciences I
Spring 2008**

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Class Schedule: Online Course

Course Webpage: <http://lss.at.ufl.edu>

COURSE DESCRIPTION AND GOALS

Statistical methods for description and analysis provide investigators with useful tools for making sense out of data. The pervasiveness of statistics in public health as well as other fields has led to increased recognition that statistical literacy – a familiarity with the goals and methods of statistics – should be a basic component of a well-rounded educational program. In this course, students will develop a statistical vocabulary, learn methods for descriptive data analysis, study the fundamentals of probability and sampling distributions, learn methods for statistical inference and hypothesis tests based on one or two samples, and become familiar with categorical data analysis and linear regression. Data analysis will be conducted in SPSS.

Course Objectives: Upon completion of the course, students will be able to

1. Describe the roles biostatistics serves in the discipline of public health
2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.
3. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.
4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions
5. Apply descriptive techniques commonly used to summarize public health data
6. Apply common statistical methods for inference
7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.

8. Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.
9. Interpret results of statistical analyses found in public health studies.
10. Develop written presentations based on statistical analyses for both public health professionals and educated lay audiences.

Discussions: As an online course you will have an opportunity to pose questions via the Discussion boards for each topic or on the “Open Discussion” board. Students are urged to respond to each to help each other in learning the material. The course TA or instructor will answer any questions that the students cannot answer amongst themselves. Students may also e-mail the instructor or TA with individual questions or concerns within the E-Learning environment, but information pertaining to course material should be posted in the discussion board versus an e-mail so that all students will benefit from the response to your questions. The discussion board in this course is not a graded discussion, but a support system for students to discuss with each other, the instructor and TA. Please keep postings to the appropriate topics and check for other answers to your question before you post your question.

COURSE MATERIALS

Textbook: Students are required to purchase the course textbook, **Statistics: The Exploration and Analysis of Data, 5th edition, by R. Peck and J. Devore, Brooks/Cole – Thomson Learning: Belmont, CA.**

Homework Solutions Manual: Students are strongly recommended to purchase the homework solutions manual that accompanies the textbook, **Student Solutions Manual, Introduction to Statistics & Data Analysis, 2th edition, by R. Peck, C. Olsen, and J. Devore, ISBN # 0-534-46522-6.** The manual contains solutions to the odd-numbered homework problems.

Webpage for Textbook: <http://www.thomsonedu.com/> (enter ISBN number and click on the textbook link and then on the Companion Website link)

Software: A student version of SPSS (version 15) is available for \$90 at the University of Florida Bookstore online (this is actually www.journeyed.com). Data analysis assignments will be conducted in SPSS. Those wishing to use SPSS in subsequent work or courses should strongly consider purchasing the Graduate Pack for \$200 at the same website. Those using a MAC system will need to purchase the Grad Pack as the student version will not run on a MAC. Those using the VISTA operating system can purchase the Grad Pack version or the student version, but will need to download a patch from SPSS at www.spss.com to enable the software to run in VISTA.

COURSE REQUIREMENTS

Quizzes: You are required to take a quiz of the materials provided with each module (1 and 2 are together) for review and preparation for the midterm and final exams. Quizzes may be taken at any time, as often as you would like, and for as long as you would like. You must complete the quizzes (at least once) in order to open the next lectures. E-Learning will assign a grade to your

quiz based on your best attempt. These grades are for you to assess how well you know the material. Quiz grades will not be counted toward the final course grade.

Data Analysis Assignments (SPSS): There will be 5 data analysis assignments assigned throughout the semester. These assignments must be completed within the SPSS software. All data results must be copied and pasted into a WORD (97-2003 compatible file, with a .doc extension) and submitted via the assignment tool for the particular assignment. **DO NOT SUBMIT RAW DATA.** The due dates for the assignments are listed below and on the course calendar. How to use the SPSS software will be covered in the course lectures. Each assignment is worth 10% of your grade for a total of 50% of the total course grade. Please use the discussion board for each assignment to discuss these assignments as needed.

Midterm and Final Exams: There will be a two-hour midterm exam and a two-hour final exam for this course. Each exam is worth 25% of your course grade. Each exam is administered in E-Learning via a Lock-Down Browser. You must download this browser, test it, and verify that it is working before entering each exam. (You do not have to reload it each time, but you should test it each time before using.) Please do not wait until the final two hours of this exam to start this process as these delays will not be an excuse to miss the exam closing date and time. There will be directions and a dummy test to verify that it is working. You are expected to do the dummy test before EACH exam to test your Lock-Down Browser. Each exam will be in two parts. One part will be answered within the E-Learning exam. The other part you will write down on your own paper, due the calculations (show your work), derive your answers, then fax this part of your submission to 352-273-5365 OR scan your paper and send as a Acrobat (.pdf) or Word (97-2003 compatible, .doc) attachment to Dr. Lu's e-mail address in E-Learning (you will have to submit the exam prior to doing this step). These portions will be clearly labeled within the exams. **YOU MUST LABEL YOUR PAPER WITH "PHC 6050 EXAM, YOUR NAME, DATE OF SUBMISSION, AND ATTENTION: DR. LU"** This must be done within the two-hour portion of the exam so plan accordingly. If you need to travel to a faxing service, you must let us know in advance. Extra time is given in this exam to complete this step as the exam is typically a 1-hour exam. If you have any difficulty with the Lock-Down Browser, contact the UF Help Desk immediately at 352-392-HELP. Write down your ticket number. Please save your answers each time, do not wait until the end of the exam.

GRADING

Grading scale:

93% - 100% = A

88% -92.9%= B+

80% -87.9%= B

75% -79.9%= C+

67% -74.9%= C

59% -66.9%= D

Below 59%=E

Grading Methods:

One two-hour online midterm = 25%

Five data analysis assignments = 50% (10% each)

One two-hour online final = 25%

ATTENDANCE POLICY

This is an online course. “Attendance” is at your own pace, but assessments and assignments have scheduled deadlines.

MAKE-UP POLICY

Make-up Policy: No late assignments or tests will be allowed, except for urgent need, please communicate with Professor Lu and the online administrator, Susan White.

STUDENTS WITH DISABILITIES

Students requesting a disability accommodation must first register with the Dean of Students Office, which will provide documentation to the student. The student should then provide this documentation to the instructor.

ACADEMIC INTEGRITY

Students are expected to act in accordance with the University of Florida policy on academic integrity (see Graduate Student Handbook for details). Cheating or plagiarism in any form is unacceptable and inexcusable behavior.

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

CLASS SCHEDULE

NOTE: In the E-Learning system a cut-off time of 11:59:00PM means that at 11:59:01PM you are late. Computers are very literal and do not recognize seconds after a given time as “on time.” Please plan your work submissions accordingly and do not wait until this cut-off time.

Week Topic

Section 1: Modules 1-5, Title: Descriptive Methods

<u>Jan 9-15</u>	Course Introduction – Explore the “Getting Started” Module and post an introductory discussion in the “Getting Acquainted” Discussion board Module 1 – The Role of Statistics Module 2 – The Data Analysis Process and Collecting Data Sensibly Quiz 1-2, on Modules 1 and 2
<u>Jan 16-22</u>	Data Analysis 1: Descriptive Methods – assigned Module 3 – Graphical Methods for Describing Data Quiz 3
<u>Jan 23-29</u>	Module 4 – Numerical Methods for Describing Data Quiz 4
<u>Jan 30-Feb 5</u>	Module 5 – Summarizing Bivariate Data Quiz 5 Data Analysis 1: Descriptive Methods – due Feb 4 before 11:59pm Data Analysis 2: Summarizing Bivariate Data via Simple Linear Regression – assigned

Section 2: Modules 6-9, Title: Probability and Estimation

<u>Feb 6-12</u>	Module 6 – Probability Quiz 6
<u>Feb 13-19</u>	Module 7 – Population Distributions Quiz 7 Data Analysis 2: Summarizing Bivariate Data via Simple Linear Regression – due Feb 18 before 11:59pm
<u>Feb 20-26</u>	Module 8 – Sampling Variability and Sampling Distributions Quiz 8
Feb 27-Mar 4	Module 9 – Estimation Using a Single Sample Data Analysis 3: Estimation Using a Single Sample– assigned
Mar 5-11	Module 9 – Estimation Using a Single Sample (cont.) Mid-term review Quiz 9
<u>Mar 10-14</u>	Spring Break
<u>Mar 15-18</u>	Mid-term Exam (over Modules 1-8, opens March 15, 12:01am –closes March 18, 11:59pm)

Section 3: Modules 10-13, Title: Hypothesis Testing and Simple Linear Regression

<u>Mar 19-25</u>	Module 10 – Hypothesis Testing Using a Single Sample
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	Quiz 10
	Data Analysis 3: Estimation Using a Single Sample – due Mar 24 before 11:59pm
	Data Analysis 4: Hypothesis Testing – assigned
<u>Mar 26-Apr 1</u>	Module 11 – Comparing Two Populations or Treatments
	Quiz 11
<u>Apr 2-8</u>	Module 12 – The Analysis of Categorical Data
	Quiz 12
	Data Analysis 4: Hypothesis Testing – due Apr 7 before 11:59pm
	Data Analysis 5: Categorical Data – assigned
<u>Apr 9-15</u>	Module 13 – Simple Linear Regression and Correlation
	Review for Final Exam
	Quiz 13
<u>Apr 16-22</u>	Review for Final Exam
	Data Analysis 5: Categorical Data – due Apr 20 before 11:59pm
<u>Apr 26-30</u>	Final Exam (Modules 1-13, 2 hours) – opens Apr 26 at 12:01am, closes Apr 30 at 11:59pm

Exams and quizzes are administered on E-Learning and to be completed without outside help, notes or text. Evidence of cheating will result in failure.

If you find any information on the course site that is contradictory to this syllabus, please bring it to Susan White's attention as soon as possible as this syllabus is the official course outline.