

University of Florida College of Public Health and Health Professions
[Fall 2009] PHC 6052: Introduction to Biostatistical Methods

Instructor:

Amy Cantrell, PhD
Research Assistant Professor
College of Public Health & Health Professions
University of Florida Health Sciences Center
PO Box 100231
Gainesville, FL 32610-0231

Phone: 352-273-5746
Fax: 352-273-5365
Email: acantrell@phhp.ufl.edu
Web: phhp.ufl.edu/~acantrell/
Office: HPNP 3117

Class meeting time:

Mon. – Periods 5-6
Wed. – Periods 6

Office hours: Period 7 – MTWH

Period 5 – H

Description: This 3 credit course is a sophisticated introduction to the concepts and methods of biostatistical data analysis. The topics include descriptive statistics, probability, standard probability distributions, sampling distributions, point and confidence interval estimation, hypothesis testing, power and sample size estimation, one and two-sample parametric and non-parametric methods for analyzing continuous or discrete data, and simple linear regression. The SAS statistical software package will be taught in this class for data management, statistical analyses and power calculations. Students will be tested on SAS knowledge.

Prerequisites: Students must have access to a laptop with SAS for in-class use (preferably **version 9.2** but you can survive with 9.1.3). To obtain SAS I believe you need to go to the software counter at the UF bookstore in the Reitz Union. They will take your money and give you some verification of payment for SAS. Then you have to take the request to the HUB (I believe the 2nd floor but hopefully it is made clear by the people at the software counter). Other general computing requirements for the public health program are found at <http://www.mph.ufl.edu/students/onlinecomputer.htm>.

Course Objectives: Students will be able to:

- Apply existing statistical theory to a broad range of medical or public health problems
- Identify appropriate statistical designs for medical and public health research.
- Perform power analyses and select appropriate sample sizes for health studies
- Conduct appropriate statistical analyses for a broad range of applications
- Communicate the results of statistical studies to statisticians and other investigators.

Required Textbook: Rosner B. *Fundamentals of Biostatistics, Sixth Edition*, 2006. Belmont: Thomson. ISBN 0-534-41820-1.

Recommended SAS books: A SAS reference guide of your choice, for example, *The Little SAS Book: A Primer* 4th ed. (2008), by Lora Delwiche and Susan Slaughter, or *Applied Statistics and the SAS Programming Language* (2005), by Ron P. Cody and Jeffrey K. Smith.

E-Learning:

An E-Learning site will be available for the course. Grades, discussion boards, and possibly other information will be available in the E-Learning system. E-learning is accessible at lss.at.ufl.edu or through my.ufl.edu. You must have a valid Gatorlink ID and password. For assistance, call the UF Help Desk at 392-HELP

Grading: Your grade in this course will be based on exams, homework, and class participation. Total points earned will be based on the following:

- Exam I (25%)
- Exam II (25%)
- Homework (25%)
- SAS Exam (20%)
- Class Participation (5%)

Class participation assessment will include attendance/tardiness, preparation for class, and participation in discussions.

The grading scale for this course consists of the standard scale, including minus grades, below. The conversion factors for grade point values assigned to each grade are also included (in parentheses):

93% - 100% = A (4.00)	73% - 76% = C (2.00)
90% - 92% = A- (3.67)	70% - 72% = C- (1.67)
87% - 89% = B+ (3.33)	67% - 69% = D+ (1.33)
83% - 86% = B (3.00)	63% - 66% = D (1.00)
80% - 82% = B- (2.67)	60% - 62% = D- (0.67)
77% - 79% = C+ (2.33)	Below 60% = E (0.00)

Classroom etiquette: Please come to class on time and be prepared to stay until the time scheduled as the end of class. Pagers and cell phones should not be used in class. The use of cell phones, text messaging, and pagers is a common complaint from students. Please turn them off. Or, if you expect urgent calls, set them to “vibrate.” Another common complaint is “side” conversations among students. Please consider that your conversation may interrupt the attention of someone seated near you. Generally, you should be speaking to the class as a whole or participating in group discussions as directed by the instructor. I welcome in-class questions. Your question will nearly always be one that other students also have.

Class Attendance: Class attendance is mandatory. Excused absences follow the criteria of the UF Graduate Catalogue (e.g., illness, serious family emergency, military obligations, religious holidays), and should be communicated to the instructor prior to the missed class day when possible. UF rules require attendance during the first two course sessions. Regardless of attendance, students are responsible for all material presented in class and meeting the scheduled due dates for class assignments. Finally, students should read the assigned readings prior to the class meetings, and be prepared to discuss the material except for the first class session.

Policy on Make-Up Work: Students are allowed to make up work ONLY as the result of illness or other unanticipated circumstances warranting a medical excuse and resulting in the student missing a homework or project deadline, consistent with College policy. Documentation from a health care provider is required. Work missed for any other reason will receive a grade of zero.

Academic Integrity: At the University of Florida, each student is bound by the academic honesty guidelines of the University and the student conduct code printed in the Student Guide and on the University website. The Honor Code states: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." Cheating or plagiarism in any form is unacceptable and inexcusable behavior.

My personal expectations and comments regarding academic integrity: Students will often be encouraged to discuss the material with other members of the class on homework and other assignments. I believe we learn best when individual learning and group cooperation are present. However, I expect that no student will ever do any of the following:

- Have another person complete any assignment in this course
- Copy another student's work on any assignment in this course
- Use materials provided by a previous student in the course for any purpose
 - Do not seek to obtain or accept offers of such materials (delete any materials you obtained prior to the beginning of the course)
 - I will often provide exactly the same information (unless I have changed it for the better)
 - I will provide any information from past semesters that I feel will help you

I believe that one of the reasons academic integrity is becoming a large issue in colleges and universities is that, for whatever reason(s), students tend to be more concerned about the grade they will obtain in the course than they are interested in learning the material. I want to stress that in this class, if you focus on learning the material and worry less about the grade you will receive, you will be rewarded with knowledge that will be much more useful to you in the future than the difference between an A, B, or even C in this class.

Accommodations for Students with Disabilities: Students requiring accommodations must first register with the Dean of Students' Office. The Dean of Students' Office will provide documentation to the student who must then provide this documentation to the faculty member when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework. We all learn differently: however, if you have experienced problems in university classes with writing, in-class exams, understanding or concentrating in class; please talk to us or access a learning or education testing resource at the University or in another professional setting. For your assistance, should you need them, please consider either of the following:

University Counseling Services
<http://www.counsel.ufl.edu/services.asp>
P301 Peabody Hall – 392-1575
Student Mental Health Services in the Student Health Care Center
<http://www.health.ufl.edu/shcc>
Room 245, Infirmary Bldg.- 392-1171

Course Outline

Topic	Reading
Class Organization, Descriptive Statistics and Graphics	Ch 2
Using SAS for Data Management and Descriptive Statistics	SAS reference
Probability	Ch 3
Probability Distributions (Normal, Binomial, Poisson)	Ch 4-5
Populations and Samples, Estimation	Ch 6
Hypothesis Testing	Ch 7-8
Using SAS for Hypothesis Testing	SAS reference
EXAM I	
Nonparametric Methods	Ch 9
Using SAS PROC NPAR1WAY	SAS reference
Categorical Data Analysis	Ch 10
Using SAS PROC FREQ for Categorical Data Analysis	SAS reference
Regression and Correlation Methods	Ch 11
Using SAS PROC REG and PROC CORR	SAS reference
SAS EXAM	
EXAM II	