

**University of Florida**  
**College of Public Health and Health Professions**  
**PHC 6937-1A29: Biostatistical Computing Using SAS**

**Fall 2017**

**Tuesdays: 11:45-12:35 Thursdays 11:45am-1:40pm (3 Credits), CTRB 5235**

**Course website: [lss.at.ufl.edu](http://lss.at.ufl.edu)**

**Instructor Information**

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Office: Room CTRB 5233, Clinical and Translational Research Building

Office Hour: 3:30-4:30pm, Thursday or apt.

Departmental Course Contact: Kristen Cason; CTRB 5220; phone: 352-294-5926

**Course Overview**

The purpose of this course is to introduce and prepare students for biostatistical computing using the SAS statistical software. It builds on the knowledge obtained in the Biostatistical Methods I and II courses by reinforcing the material and focusing on application within the SAS framework. This will prepare students for future SAS programming and analysis needs within future coursework, graduate assistantships, as well as for future marketability and employment. Topics covered include data management, frequency tables, linear and non-linear models, longitudinal data analysis, Matrix programming, simulation, and using SAS macros.

**Prerequisites:**

Biostatistical Methods I (PHC 6050C) and Biostatistical Methods II (PHC 6051)

**Course Objectives and/or Goals:**

Upon successful completion of the course, students should be able to (with SAS):

- Import, export, and manipulate datasets
- Initiate and perform basic and intermediate analyses
- Interpret output from common procedures
- Perform basic power analysis and create macros and simulations

**Course Materials**

Required text: *Applied Medical Statistics Using SAS* (2013), by Geoff Der and Brian Everitt. CRC Press, Boca Raton, FL. ISBN 978-1439867976.

Optional text: The Little SAS Book, 5<sup>th</sup> edition (2012), Delwiche and Slaughter. SAS, Cary, NC. ISBN 978-1612903439

Note: Note that 'The Little SAS Book' 5th edition is currently available in electronic version for free from the UF. We will go over how to access it in the first class.

<http://library.books24x7.com/bookshelf.asp?>

### **Course Requirements/Evaluation/Grading**

Students are responsible for all course material, including reading required materials and watching required videos prior to each class. Failure to complete assignments will result in a failing grade.

The assessment will include class participation, homework and laboratory assignments, and a final exam. Class participation will include weekly attendance and active participation in discussions.

Homework: Homework will be assigned approximately once a week. Students are encouraged to consult one another on homework problems and programming issues, but everyone should perform their own programming and write-up and turn in their own homework along with the code that produced it; no “blind copying” or other obvious copying is permitted. Also, absolutely no assistance on class assignments should involve anyone not enrolled in the current course. Solutions will be handed out or gone over in class. Care should be taken with respect to detail of assignments. **Of note, I will stress that a bunch of SAS output is not a valid HW submission. This does not show me that you understand which information is important and how to interpret it. Approximately half will be graded for completion and the other half for completion/content.**

Laboratory assignments may be worked on as group exercises. Each member of the group must attest that there was equal participation in the final product with a statement such as “This assignment was significantly contributed to by all team members”.

Analysis will be performed with the SAS software. Examples of the use of this software will be included in assigned readings and classroom activities.

Info for Obtaining SAS:

SAS 9.4 (SAS Education Analytical Suite) available for use on personal computer for \$35 from: <https://software.ufl.edu/agreements/sas/student/>

To enroll in the SAS Student Home Use Program, students can obtain the SAS from these two locations:

- Technology Desk within the University Bookstore and Welcome Center located on Museum Road attached to Reitz Union (Phone: 352-392-0194).
- UF Computing Helpdesk at the Hub

Class participation: 10%  
 HW Assignments (expected 10 x 5%): 50%  
 Laboratory Assignments (2 x 7.5%): 15%  
 Final Exam (take home): 25%

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

93% - 100% = A (4.00)  
 90% - 92.99% = A- (3.67)  
 87% - 89.99% = B+ (3.33)  
 83% - 86.99% = B (3.00)  
 80% - 82.99% = B- (2.67)  
 77% - 79.99% = C+ (2.33)  
 73% - 76.99% = C (2.00)  
 70% - 72.99% = C- (1.67)  
 67% - 69.99% = D+ (1.33)  
 63% - 66.99% = D (1.00)  
 60% - 62.99% = D- (0.67)  
 Below 60% = F (0.00)

### **Tentative Topical Outline**

<b>Week</b>	<b>Topic</b>	<b>Chapter/Readings</b>	<b>Assign</b>
1	Intro to SAS	1	HW 1
2	Statistics and Measurement in Health Research	2	HW 2
3	Clinical Trials	3	HW 3
4	Epidemiology/ Observational Research	4	Lab 1
5	ANOVA/ANCOVA	6	HW 4
6	Plots/Correlation/Simple Linear Regression	7	HW 5
7	Multiple Linear Regression	8	HW 6
8	Logistic Regression	9	Lab 1
9	Generalized Linear Models	10	HW 7
10	Longitudinal Data Analysis I	12	HW 8
11	Longitudinal Data Analysis II	13	
12	Longitudinal Data Analysis III	14	HW 9
13	Matrix Programming with SAS/IML		HW10
14	Programming Macros	tba	Lab 2
15	Simulations with SAS/Missing Data	tba	Final (take home)

## **Online Faculty Course Evaluation Process**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>

## **Academic Integrity:**

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. “ You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code, the Graduate Student Handbook and these web sites for more details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

<http://www.dso.ufl.edu/sccr/honorcodes/conductcode.php>

<http://www.dso.ufl.edu/studenthandbook/studentrights.php>

<http://gradschool.ufl.edu/students/introduction.html>

## **Policy Related to Class Attendance and Late or Missed Assignments:**

Attendance of all class sessions is required. Please see the instructor as early as possible regarding possible absences. All assignments need to be handed in on time. Grading will penalize late assignments. Missed assignments will receive a zero score. Personal issues with respect to class attendance or fulfillment of course requirements (assignments, final presentation, class discussion) will be handled on an individual basis.

Students are expected to show up for class prepared and on time. Cell phones are to be silenced during class unless there is an emergency, in which case please inform the instructor.

## **Accommodations for Students with Disabilities**

If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (<http://www.dso.ufl.edu>). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation.

The College is committed to providing reasonable accommodations to assist students in their coursework.

### **Counseling and Student Health**

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information: <http://www.counsel.ufl.edu/> or <http://www.health.ufl.edu/shcc/smhs/index.htm#urgent>

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: [www.health.ufl.edu/shcc](http://www.health.ufl.edu/shcc)

Crisis intervention is always available 24/7 from:  
Alachua County Crisis Center: (352) 264-6789.

*BUT – Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.*

### **Inclusive Learning Environment**

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: [www.multicultural.ufl.edu](http://www.multicultural.ufl.edu)