

**University of Florida**  
**College of Public Health & Health Professions Syllabus**  
**PHC 6937: Survey of Biostat Methods (3)**  
 Spring: 2018  
 Lecture: On-Campus T 7 R 7-8 in HPNP G301  
 CANVAS: <http://elearning.ufl.edu>

Instructor Name: Robert Parker  
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 Office Hours: Tuesday 10-10:50 am in CTRB 5219  
 Preferred Course Communications: email

**Prerequisites:** *PHC 6052 or permission of the instructor*

## PURPOSE AND OUTCOME

### Course Overview

This course is a survey of biostatistical methods beyond one and two sample techniques covered in PHC 6052. Advanced topics will be selected from areas such as regression models for clustered/correlated data, missing data methods, causal inference, model/variable selection, multiple testing, multivariate methods, or non-parametric methods. Focus will be on the application of these techniques to data from the health sciences. SAS will be the main software package for this course.

### Relation to Program Outcomes

This is a biostatistics service course for students in the health sciences.

### Course Objectives and/or Goals

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

- 1) Describe various advanced statistical methods and identify practical issues regarding their use.
- 2) Generate and interpret output from statistical analysis programs.
- 3) Critically evaluate statistical content using these methods in the literature from their field.

### Instructional Methods

Lectures with slides and data analysis using SAS and R will be presented in class and made available to students in CANVAS. Assessments will consist of homework assignments and two take home exams.

## DESCRIPTION OF COURSE CONTENT

### Topical Outline/Course Schedule

Week	Date(s)	Topic(s)	Assessment
1	Jan 8-12	Multiple Regression	
2	Jan 15-19	Model/Variable Selection	HW 1 – Multiple Regression and Variable Selection
3	Jan 22-26	Linear Models for Correlated Data	
4	Jan 29 – Feb 2	Linear Models for Correlated Data	HW 2 – Linear Mixed Effects Models
5	Feb 5-9	Logistic/Poisson Regression	
6	Feb 12-16	GEE and GLMM	HW 3 – GEE and GLMM
7	Feb 19-23	Missing Data Methods	

Week	Date(s)	Topic(s)	Assessment
8	Feb 26 – Mar 2	Review	Exam 1
9	Mar 5 – 9	<b>No Class – Spring Break</b>	
10	Mar 12 – 16	Nonparametric Methods	
11	Mar 19 – 23	Classification	HW 4 – Nonparametric Methods and Classification
12	Mar 26 – 30	PCA/Factor Analysis	
13	Apr 2 – 6	Clustering	HW 5 – Clustering and PCA
14	Apr 9 – 13	Casual Inference	HW 6 – Causal Inference
15	Apr 16 - 18	Review/Exam 2	Exam 2

**Note:** This schedule is tentative and subject to change.

### Course Materials and Technology

**Software:** Students will need to have access to SAS on their laptop. SAS can be used through UF apps at [apps.ufl.edu](https://apps.ufl.edu) or it can be purchased from the UF bookstore (see <https://software.ufl.edu/agreements/sas/student/>).

**Texts:** There are no required texts for this course. Below are several references used for the course material.

Vittinghoff, E., Glidden, D.V., Shiboski, S.C., and C.E. McCulloch. *Regression Methods in Biostatistics: Linear, Logistic, Survival, and Repeated Measures Models*. Second Edition. Springer: New York, 2012.

Geoff, D. and B.S. Everitt. *Applied Medical Statistics Using SAS*. CRC Press: Boca Raton, 2013.

James, G., Witten, D., Hastie, T., and R. Tibshirani. *An Introduction to Statistical Learning with Applications in R*. Springer: New York, 2013.

Verbeke, G. and G. Molenbergs. *Linear Mixed Models for Longitudinal Data*. Springer, 2000.

Verbeke, G. and G. Molenbergs. *Models for Discrete Longitudinal Data*. Springer, 2005.

For technical support for this class, please contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu)
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

## ACADEMIC REQUIREMENTS AND GRADING

### Assignments

Students are responsible for all course material, including reading required materials prior to class.

The assessment will include class participation, in class worksheets, homework, and two exams. Class participation will include weekly attendance and participation in discussions.

### Grading

Requirement	% of final
Class participation	10%
Homework	40%
In-Class Worksheets/Labs	20%

Exam 1	15%
Exam 2	15%

<b>Final Average</b>	94-100	90-93	85-89	80-84	77-79	74-76	70-73	67-69	64-66	60-63	57-59	<57
<b>Letter Grade</b>	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

<b>Letter Grade</b>	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
<b>Grade Points</b>	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0	0.0	0.0	0.0	0.0

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at:

<http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### Exam Policy

#### Policy Related to Make up Exams or Other Work

Students are allowed to make up work ONLY as a result of illness or other unanticipated circumstances warranting a medical excuse and resulting in the student missing an assignment 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. Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from e-learning support when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

#### Policy Related to Required Class Attendance

Attendance of all class sessions is expected. We will follow the UF Attendance Policy. For information regarding the UF Attendance Policy see the Registrar website for additional details:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

## STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

### Expectations Regarding Course Behavior

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.

### Communication Guidelines

Questions about course material should be asked in class.

### 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 or the Graduate Student Website for additional details:

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

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

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

### **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/>.

## **SUPPORT SERVICES**

### **Accommodations for Students with Disabilities**

If you require classroom accommodation because of a disability, you must register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class. The Dean of Students Office will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please make sure you provide this letter to me by the end of the second week of the course. The College is committed to providing reasonable accommodations to assist students in their coursework.

### **Counseling and Student Health**

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- 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. 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: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from:  
Alachua County Crisis Center:  
(352) 264-6789  
<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

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.

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