

University of Florida
College of Public Health & Health Professions Syllabus
PHC 6937: Survey of Biostat Methods (3 Credits, Spring 2019)
 Delivery Format: On-Campus
 Tuesday 7th Period & Thursday 7-8th period in HPNP G103
 Course Content in E-learning using CANVAS: <http://elearning.ufl.edu>

Instructor Name:	Dr. Yichao Yu
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Office Hours:	Tuesday 4 th Period in CTRB 5213 or by appointment
Preferred Course Communications:	E-mail or CANVAS Inbox

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 multiple linear regression, study design and ANOVA, contingency tables, logistic regression, Poisson regression, repeated measures and longitudinal data analysis, missing data methods, model/variable selection, survival analysis, multivariate methods, or non-parametric methods. Focus will be on the application of these techniques to data from the health sciences. Examples will make use of SAS and R 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 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, two take home exams and a final project.

DESCRIPTION OF COURSE CONTENT

Topical Outline/Course Schedule

Week	Date(s)	Topic(s)	Assessment
1	01/07-01/11	Review of PHC 6052	HW 1 – Review of PHC 6052 (due 01/17)
2	01/14-01/18	Multiple Linear Regression	HW 2 – Multiple Linear Regression (due 01/24)
3	01/21-01/25	Model/Variable Selection	
4	01/28-02/01	ANOVA	HW 3 – ANOVA (due 02/07)
5	02/04-02/08	Contingency Tables	

Week	Date(s)	Topic(s)	Assessment
6	02/11-02/15	Logistic Regression	HW 4 – Contingency Tables and Logistic Regression (due 02/21)
7	02/18-02/22	Poisson Regression	
8	02/25-03/01	Review/Exam 1	Exam 1 (post on 02/27, due 03/01)
9	03/04-03/08	No Class – Spring Break	
10	03/11-03/15	Linear Mixed Model	HW 5 – LMM (due 03/28)
11	03/18-03/22	Linear Mixed Model	
12	03/25-03/29	GEE/GLMM	HW 6 – GEE/GLMM (due 04/04)
13	04/01-04/05	Missing Data Methods	
14	04/08-04/12	Survival Analysis	HW 7 – Survival Analysis (due 04/18)
15	04/15-04/19	CV and Bootstrapping	Couse Project (due 04/23)
16	04/22-04/26	Review/Exam 2	Exam 2 (post on 04/24, due 04/26)

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 <https://apps.ufl.edu/vpn/index.html> or it can be purchased from the UF bookstore (See <https://software.ufl.edu/software-listings/sas-student-licensing.html> for SAS program purchase information and online documents). R and RStudio can be downloaded free from <https://www.r-project.org/> and <https://www.rstudio.com/products/rstudio/download/>.

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
- (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, homework, two exams, and a data analysis project. Class participation will include weekly attendance and participation in discussions.

- **Attendance** will be based on number of absences, where 1 point will be deducted for each unexcused absence up to the total of 5 points.
- **Homework** assignments will be assigned every 2 weeks, except for HW 1 – Review of PHC 6052. All homework are due on Thursdays. Late submissions will receive zero unless arrangement was made in advance.
- A **final project** will be completed by each student individually using one of the methods discussed in class. Each student will complete a project and write a report. A grading rubric will be provided with the project assignment.
- **Exams** are take home. Students will have three days to finish it. When submitting exams on CANVAS, both the answers to the questions and software outputs need to be submitted. All answers

need to be clearly labeled in one file. All software outputs, along with SAS/R codes, need to be in a separate file.

Grading

Requirement	% of final
Class participation	5%
Homework	40%
Project	15%
Exam 1	20%
Exam 2	20%

Final Average	93-100	90-92	85-89	80-84	77-79	74-76	70-73	67-69	64-66	60-63	57-59	<57
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
Grade Points	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>

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/>.

Policy Related to Guests Attending Class:

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy: <http://facstaff.php.ufl.edu/services/resourceguide/getstarted.htm>

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.
