University of Florida
College of Public Health and Health Professions
PHC 6937: Public Health Computing (3 credits)
Spring 2018

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                      College of Public Health and Health Professions
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Classroom   HPNP G110
Time   Tuesdays 8:30am-10:25am, Thursdays 8:30am-9:20am

Prerequisites: PHC 6052: Introduction to Biostatistical Methods. Students must have prior experience with basic data entry and analysis in SAS. Students who have not taken the pre-requisite course must illustrate their SAS skills at the PHC 6052 level in order to obtain instructor approval to enroll. All students must have access to a computer in class with SAS 9.3 or higher installed and the ability to run R 3.4 or higher. See http://software.ufl.edu/agreements/sas/student/ for SAS program purchase information and online documents. Computing requirements can be found at http://mph.ufl.edu/current-students/student-essentials/technologyrequirements/.

Corequisite: PHC 6053: Regression Methods for Health and Life Sciences. Students must have or be concurrently taking a course that covers multiple and logistic regression in detail.

Course Overview

This is a three credit course which covers using SAS and R to process and analyze public health data. Students will learn how to input, store, modify, display and perform common analyses of public health data using SAS and R. Although we will discuss results, this course does NOT teach statistical methods.

Course Structure

This course is presented using face to face lectures. Lectures will be given during Tuesday's class. During Thursday's class session, students will have the opportunity to ask questions of the instructor and work with each other to create solutions to assignments. Students can also receive feedback and assistance via the course discussion board or email in E-Learning.

Relation to Program Outcomes

This three-credit course is a required concentration core course for MPH Biostatistics students and covers the following competencies.

- Describe the role of biostatistics in public health research.
- Use appropriate statistical methodology to address public health problems.
- Develop presentations based on statistical methods and analyses for public health professionals and educated lay audiences.
- Apply software to conduct statistical analyses.

Course Objectives

It is expected that by the end of this course students will be able to:
1. Input, export, store, modify, display, and analyze public health data using SAS and R.
2. Demonstrate how to use common SAS procedures and R functions to analyze public health data.
3. Create SAS MACROS and user defined R functions to solve complex problems.
4. Use ODS techniques to control SAS output.
5. Plan and implement data analyses using SAS and R and present the results.
6. Solve problems with SAS and R independently.
7. Plan and implement simulations using SAS and R.

Course Materials

This course will use the Canvas CMS. The weekly schedule and all course materials are available online through this site including lecture videos, grades, assignments, and other course information. E-Learning is accessible at elearning.ufl.edu. You must have a valid Gatorline ID and password to access this course site. For issues with technical difficulties please contact the instructor or Academic Technology at the following:

Email:	learning-support@ufl.edu
Phone:	(352)392-HELP – select option 2
Web:	https:/lss.at.ufl.edu/help.shtml

Course announcements will be made via Canvas. Students are responsible for being aware of any course announcement within 24 hours of it being posted.

Required Text

- The Little SAS Book: A Primer 5th ed., by Lora Delwiche and Susan Slaughter. You can read this book for free via the UF library or purchase a hard copy.
- An Introduction to R by W. N. Venables, D. M. Smith and the R Core Team. Available online for free at https://cran.r-project.org/doc/manuals/R-intro.pdf

Technology

A computer running SAS 9.3 or higher and capable of running R and RStudio.

Course Requirements

Assignments: Each week there will be programming activities related to the material covered in the lectures and reading. These assignments will typically be assigned on Tuesday and due the following Tuesday by 10pm.

Midterm Project: The midterm project will be a programming project on both SAS and R topics covered during the first half of the semester.

Final Project: For the final project, each student will find their own dataset and perform a guided data analysis. The analyses will be done in both SAS and R with the results written up in a final report.

Grading

Point Distribution:
      Assignments – 60%
      Midterm Project – 20%
      Final Project – 20%

Policy Related to Make up Exams or Other Work: Students are allowed to make up work ONLY as the result of illness or other unanticipated circumstances warranted a medical excuse and resulting in the student missing an assignment deadline, consistent with the 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 LSS 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.

Grading Scale: The final grade will be computed on the basis of the following assessments:

Points earned	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	Below 60
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Please be aware that a C- is not an acceptable grade for graduate students. A grade of C counts toward a graduate degree only if an equal number of credits in courses numbered 5000 or higher have been earned with an A. In addition, the Bachelor of Health Science Program does not use C- grades.

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

Academic Integrity

Each student is bound by the academic honesty guidelines of the University that state: "The students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective

action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code." And, each student, upon submission of an assignment, implies the pledge:

"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.

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 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 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 the 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

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.

Tentative Course Schedule

Instructor reserves the right to modify the course schedule with advance notice provided to students.

	Date	Weekly Topic(s)
WEEK 1	1/9	Syllabus and Intro to R
WEEK 2	1/16	Importing and Exporting Data
WEEK 3	1/23	ODS in SAS and Basic R Plotting
WEEK 4	1/30	SAS Macros and R Functions
WEEK 5	2/6	Data Management and Cleaning in SAS and R
WEEK 6	2/13	Simulations
WEEK 7	2/20	Categorical Data Analysis
WEEK 8	2/27	ANOVA and Simple Linear Regression / **Midterm Project**
WEEK 9	3/6	Spring Break No Classes
WEEK 10	3/13	Multiple Linear Regression
WEEK 11	3/20	Logistic and Poisson Regression
WEEK 12	3/27	Survival Analysis
WEEK 13	4/3	PROC SQL and 'dyplr' Package
WEEK 14	4/10	Advanced Plotting
WEEK 15	4/17	Wrap Up
WEEK 16	4/24	**Final Project**