

University of Florida
College of Public Health & Health Professions Syllabus
PHC 6937: Public Health Computing (3)
 Fall: 2018
 Delivery Format: On-Campus
 HPNP G-111 - M 8th and T 6-7th Periods
 Course Content in E-Learning using CANVAS: <http://elearning.ufl.edu>

Instructor Name:	Dr. Robert Parker
Room Number:	CTRB 5219
Phone Number:	352-294-5906
Email Address:	rlp176@ufl.edu
Office Hours:	M 6 th Period in CTRB 5219 or by appointment
Preferred Course Communications:	E-mail

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.

PURPOSE AND OUTCOME

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.

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 and/or Goals

- Input, export, store, modify, display, and analyze public health data using SAS and R.
- Demonstrate how to use common SAS procedures and R functions to analyze public health data.
- Create SAS MACROS and user defined R functions to solve complex problems.
- Use ODS techniques to control SAS output.
- Plan and implement data analyses using SAS and R and present the results.
- Solve problems with SAS and R independently.
- Plan and implement simulations using SAS and R.

Instructional Methods: This course is presented using live lectures. Lectures will be given during M 8th period and Tuesday 6th and 7th periods. Throughout the lectures, students will complete short programming exercises using SAS and R to reinforce and practice the techniques covered during the lecture.

DESCRIPTION OF COURSE CONTENT

Course Schedule

Week	Date(s)	Topic(s)	Suggested Readings/Resources
1	Aug 27-31	Intro to R and Rstudio, Basic R, and Data I/O	The Book of R: Appendix A, B, Chapter 1, 2, 8
2	Sept 3-7	Subsetting Data in R, Data Summarization, and Basic Plotting HW 1: Due 9/10	The Book of R: Chapter 3, 4, 5, 7, 13, and 14, 23, and 24
3	Sept 10-14	Data Classes and Data Cleaning	The Book of R: Chapter 3, 5, 6
4	Sept 17-21	Manipulating Data in R and Data Visualization HW 2: Due 9/24	The Book of R: Chapter 23 and 24 Using R and Rstudio: Chapter 2
5	Sept 24-28	Loops, Functions, and Statistical Analysis	The Book of R: Chapters 9, 10, 11, 18, 19, 20, and 21
6	Oct 1-5	Simulations, and Reports with Rmarkdown and Knitr HW 3: Due 10/8	Using R and Rstudio: Chapter 7, 10
7	Oct 8-12	Intro to SAS Programming	LSB: Chapters 1, 1.19, 11 LSBE: Chapters 1, 2, 4 and 5
8	Oct 15-19	Reading Data into SAS HW 4: Due 10/22	LSB: Chapter 2 LSBE: Chapters 3, 6, 7 and 21
9	Oct 22-26	Data Manipulation and Data Cleaning	LSB: Chapter 3 and 6 LSBE: Chapters 7, 10, 11, 12, 9, 22
10	Oct 29-Nov 2	Loops, Arrays, and Transposing HW 5: Due 11/5	LSB: Chapter 3.11, 6.10-6.14 LSBE: Chapter 8, 13, and 23
11	Nov 5-9	ODS: Reports and Graphs Project Proposal: Due 12/13	LSB: Chapters 4, 5, and 8 LSBE: Chapters 14, 15, 16, 17, 18, 19 and 24
12	Nov 12-16	Macros HW 6: Due 11/19	LSB: Chapter 7 LSBE: Chapter 25
13	Nov 19-23	Macros	LSB: Chapter 7 LSBE: Chapter 25
14	Nov 26-30	SQL Project Report: Due 11/30	LSBE: Chapter 26
15	Dec 3-7	Student Presentations: In Class	

Note: LSB = Little SAS Book and LSBE = Learning SAS by Example

Holidays: No class September 3 (Labor Day) and November 12 (Veterans Day).

Course Materials and Technology: 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/technology-requirements/>.

There is no single textbook that covers the material in this course. Listed below are a few suggested references for programming and statistical analyses using SAS and R.

- The Little SAS Book: A Primer 5th ed., by Lora Delwiche and Susan Slaughter, SAS Institute: Cary, NC (2012). Available for free through the [UF library](#)
- Learning SAS by Example, by Ron Cody, SAS Institute: Cary, NC (2007). Available for free through the [UF library](#).
- Applied Medical Statistics Using SAS, by Geoff Der and Brian S. Everitt.
- The Book of R: A First Course in Programming and Statistics, by Tilman M. Davies, No Starch Press: San Francisco (2016). Available for free through the [UF library](#)
- Using R and Rstudio for Data Management, Statistical Analysis and Graphics 2nd ed, by Nicholas J. Horton and Ken Kleinman, CRC Press: Boca Raton (2015).
- A Handbook of Statistical Analyses Using R., by Brian S. Everitt and Torsten Hothorn, CRC Press: Boca Raton (2014).

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

Grades will be based on attendance, class participation in discussions and labs, homework and a final project.

- **Attendance** will be based on number of absences, where 1 point will be deducted for each unexcused absence.
- **Labs** will consist of a series of short programming exercises as practice for the concepts discussed during the lecture. These will be discussed in class and submitted in CANVAS.
- **Homework** assignments will be assigned every 2 weeks. Students are allowed to discuss the assignments, but final submissions must be your own work. DO NOT copy another students solutions. Late submissions will result in point deductions.
- A **final project** will be completed by each student to demonstrate and/or expand on the programming skills learned during this course. Each student will complete a project and give a short presentation during the final week of the class. Examples of project ideas include a formal written report of a data analysis, including tables, graphs, and results using report writing techniques such as Rmarkdown/Knitr and ODS, a simulation experiment or a tutorial for an aspect of SAS or R not covered in class (e.g. Shiny apps or PROC MIXED).

Grading

Requirement	% of final grade
Attendance	10%
In Class Labs (14, ~1.4% each)	20%

Homeworks (6, ~6.7% each)	40%
Final Project (Proposal – 5%, Report – 20%, Presentation – 5%)	30%

Point system used (i.e., how do course points translate into letter grades).

Example:

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. The GPA for graduate students must be 3.0. in all 5000 level courses and above to graduate. A grade of C counts toward a graduate degree only if a sufficient number of credits in courses numbered 5000 or higher have been earned with a B+ or higher. 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

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 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 me within 24 hours of the technical difficulty if you wish to request a make-up.

Policy Related to Required Class Attendance

Class attendance is mandatory. Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation. Excused absences should be communicated to the instructor prior to missed class days when possible. UF rules require attendance during the first two course sessions. Regardless of attendance, students are responsible for all materials presented in class and meeting the scheduled due dates for class assignments. Finally, students should preview the currently assigned materials prior to the class meetings, and be prepared to discuss the material. Please note all faculty are bound by the UF policy for excused absences. Additional information can be found here:

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

STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

Expectations Regarding Course Behavior

Communication Guidelines: Questions about course material should be in class or through E-mail in E-learning. Questions about a specific quiz question or of a personal nature should be sent by email INBOX through E-Learning.

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, it is strongly recommended you register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class or as soon as you believe you might be eligible for accommodations. 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 do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. 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.

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
