

University of Florida
College of Public Health & Health Professions Syllabus

PHC6089: Public Health Computing (3 credits)

Fall 2022

Delivery format: On-campus

Course content in E-learning using Canvas: <http://elearning.ufl.edu>

Instructor:	Peter Chang
Meeting Times:	Mon 3-3:50 PM, Tue 1:55-3:50 PM
Room:	HPNP 1101
Email address:	pchang27@ufl.edu
Office hours:	TBA
Preferred communication:	Email

Details on OH: Office hours will mainly be done by Zoom. If you wish to drop by my desk, please e-mail me ahead of time. The links to the Zoom will be posted on Canvas.

Prerequisites: PHC6052 or instructor approval

Additional information on all course policies can be found in the Graduate Catalog at <https://catalog.ufl.edu/graduate/regulations/>.

Purpose and Outcome

Course Overview: This is a three-credit course which covers the use of SAS and R to manage and analyze public health data. Students will learn how to import, modify, visualize, and perform common analyses of public health data using SAS and R.

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
- Apply software to conduct statistical analyses

Course Objectives and/or Goals: Upon successful completion of the course, students will be able to:

- CO-1: Import, export, store, modify, visualize, and analyze public health data using SAS and R
- CO-2: Demonstrate how to use common SAS procedures and R functions to analyze public health data
- CO-3: Create SAS MACROS and user defined R functions to solve complex problems
- CO-4: Use the Output Delivery System to control SAS output
- CO-5: Implement public health data analyses using SAS and R
- CO-6: Plan and implement simulations using SAS and R

Instructional Methods: This course is presented using live lectures. Lectures will be given Mondays (8th period, 3-3:50 PM) and Tuesdays (7th & 8th periods, 1:55-3:50 PM). Throughout the lectures, students will complete short programming exercises using SAS and R to reinforce and practice the techniques covered during the presentation.

Course Schedule, Materials, and Technology

Tentative Schedule

This schedule is subject to change. Please see the course Canvas page for the specific times at which assignments are due. Typically, labs are due prior to the start of that day's class and homeworks and projects are due at 11:59 PM.

Week	Dates	Topic(s)	Assignments Due
1	8/29-9/4	Intro to R and Rstudio, Basic R, and Data Input/Output 8/29: First day of class	
2	9/5-9/11	Subsetting Data in R, Data Summarization, 9/6: Labor Day, No class	9/5: Labs 1-3
3	9/12-9/18	Data Classes and Data Cleaning	9/13: Labs 4-5
4	9/19-9/25	Manipulating Data in R and Data Visualization	9/19: Labs 6-7 9/22: HW 1
5	9/26-10/2	Loops, Functions, and Statistical Analysis	9/26: Labs 8-9
6	10/3-10/9	Simulations and Reports with R Markdown and knitr	10/3: Labs 10-11 10/6: HW 2
7	10/10-10/16	Shiny	10/10: Lab 12, R Project Proposal
8	10/17-10/23	Introduction to SAS	10/20: HW 3

9	10/24-10/30	Subsetting Data and Data Summarization in SAS	10/24: Labs 13-16 10/30: R Project
10	10/31-11/6	Formats, Functions, and Data Cleaning in SAS	10/31: Labs 17-18
11	11/7-11/13	Data Manipulation and the Output Delivery System in SAS	11/7: Labs 19-21 11/10: HW 4
12	11/14-11/20	Statistical Analysis in SAS	11/14: Labs 22-23
13	11/21-11/27	SAS Macros	11/21: Lab 24
14	11/28-12/4	Simulations in SAS	11/29: Lab 25-26 12/1: HW 5
15	12/5-12/11	PROC SQL 12/6: Last course session	12/7: HW 6 12/11: SAS Project

Textbooks: 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. *These books are available for free as electronic e-books as part of library holdings.*

- 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.
- 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
- R for Data Science, by Garrett Grolemund and Hadley Wickham. Available online for free from link

Software: All students must have access to a computer in class with SAS 9.4 or higher installed and the ability to run R 4.0 or higher. For SAS program purchase information and online documents, please see <http://helpdesk.ufl.edu/software/services/spss/> (or search for “SAS Licensing for Students” at <https://software.ufl.edu/>). SAS can also be used free through UFApps at <https://apps.ufl.edu/vpn/index.html>. R is available for free and can be downloaded at <https://www.r-project.org/>, RStudio can be downloaded at <https://www.rstudio.com/products/rstudio/download/>. Computing requirements can be found at <http://mph.ufl.edu/current-students/studentessentials/technology-requirements/>. 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 labs, homework and projects.

- 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 before the indicated dates. Labs are graded for completion. In the case of an excused absence, late lab assignments will be accepted for full credit. No credit will be given for missed labs in the case of an unexcused absence.
- Homework assignments will be assigned every 2 weeks. The homeworks are short programming exercises using the SAS/R skills covered during previous weeks. Homework will be graded for accuracy. Late submissions will result in a 10% point deduction. No assignments will be accepted more than 1 day late without prior approval from the instructor.
- SAS and R projects will be completed by each student. These projects will consist of code with output to demonstrate the skills learned during this course applied to a dataset chosen by the student. A grading rubric will be provided with the project assignment.

Grading:

Requirement	% of final grade
Labs (26)	20%
Homeworks (6)	40%
R Project (1)	20%
SAS Project (1)	20%

Final Average	[94, 100]	[90, 94)	[87, 90)	[83, 87)	[80, 83)	[77, 80)	[73, 77)	[70, 73)	[67, 70)	[63, 67)	[63, 67)	<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 based on 5000 level courses and above to graduate. A grade of C counts toward a graduate degree only if based on credits in courses numbered 5000 or higher that have been earned with a B+ or higher.

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	3.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0	0.0	0.0	0.0	0.0

Policy Related to Make-up Work: Students are allowed to make up work only as the result of excused absences consistent with College policies. Work missed for excused absences will be accepted for full credit, but 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 UF Computing help desk (<http://helpdesk.ufl.edu/>) correspondence. You must email 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 require appropriate documentation. Excused absences should be communicated to the instructor prior to missed class days when possible. Regardless of attendance, students are responsible for all materials presented in class and meeting the scheduled due dates for class assignments. Please note all faculty are bound by the UF policy for excused absences. Requirements for excused absences and make-up exams, assignments, and other work in this course are consistent with university policies in the Graduate Catalog.

Student Expectations, Roles, and Opportunities for Input

Expectations Regarding Course Behavior: Students are expected to show up for class prepared and on-time. Students are responsible for all materials presented in class and meeting the scheduled due dates for assignments. Students should preview currently assigned materials prior to class meetings and be prepared to discuss the material. 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, through email, or via the Canvas Inbox. A member of the course staff will respond within one business day and often sooner.

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/>

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

Professionalism and COVID

As students pursuing a path in the health professions or public health, it is crucial to demonstrate professional behaviors that reflect integrity and commitment to the health of patients, fellow health professionals, and to populations we serve. To accomplish this, a strong responsibility for the well-being of others must be evident in our decisions, along with accountability for our actions. Professionalism in the health disciplines requires adherence to high standards of conduct that begin long before graduation. This is particularly true during times of health emergencies such as the COVID pandemic, given our professional habits can have a direct impact upon the health of persons entrusted to us.

If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: <https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.

In response to COVID-19, the following professional practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to protect the health and safety of ourselves, our patients, our neighbors, and our loved ones.

- You are required to wear approved face coverings at all times while in Health Science Center classrooms and within Health Science Center buildings even if you are vaccinated.

- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.
- Continue to follow healthy habits, including best practices like frequent hand washing.
- Avoid crowded places (including gatherings/parties with more than 10 people)

Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class. Hand sanitizing stations will be located in every classroom.

Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.

Continue to regularly visit coronavirus.UFHealth.org and coronavirus.ufl.edu for up-to-date information about COVID-19 and vaccination.

COVID-19 Symptoms

See <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html> for information about COVID-19 symptoms, which may include fever, cough, shortness of breath or difficulty breathing, fatigue, chills, muscle or body aches, headache, sore throat, congestion or runny nose, nausea or vomiting, diarrhea, and loss of taste or smell.

Online Faculty Course Evaluation Process: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/publicresults/>.

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.

Recording Within the Course: Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture *does not* include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Support Services

Accommodations for Students with Disabilities: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, 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 website for more information: <http://www.counseling.ufl.edu>. Online 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 352-392-1161 or visit <https://shcc.ufl.edu/>.
- Crisis intervention is always available 24/7 from the Alachua County Crisis Center at 352-264-6789 or <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 an inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: www.multicultural.ufl.edu