PUBHLTH 497R (1 credit)
Introduction to Statistical Computing with R
Fall 2016

Instructor: Stephen A Lauer, MS
Class meeting time: Friday 9:05-9:55AM
Classroom: Fine Arts Center 444
Office Hours: 12:00-1:00PM in Arnold 417

MATERIALS

DataCamp :: datacamp.com
R :: r-project.org (or just Google "r")
RStudio :: rstudio.org

PREREQUISITES
None. We encourage students to be concurrently enrolled in a biostatistics or statistics (e.g. PUBHLTH 490ST or PUBHLTH 223) class where they can be applying R in homework and project assignments.

COURSE GOALS
The aim of this course is to provide a foundation of fundamental statistical computing concepts and practice using the R statistical computing language. Students will learn the basics of using R to create, import, export, manage, visualize and analyze data. Students will apply their skills in homework assignments in DataCamp, an online learning platform. Additionally, this course will prepare students to complete assignments in PUBHLTH 490ST and PUBHLTH 223.

GRADING
Homework (95%): Each week there will be an assignment to do in DataCamp. All assignments will be posted on the PubHlth 497D DataCamp group account, and perhaps another course website to be determined later. Programming comes more easily for some than for others, so – at least initially – assignments will be graded based on completion. These assignments will align with the curriculum in PubHlth 490ST, thus punctuality is important. Completing assignments on time will give you full credit and prepare you for your assignments in other classes. Assignments received after the due date but before the end of the semester will get partial credit.

Since this is a new class and your feedback is critical, I will create Google Form questionnaires after each assignment to judge the value and pace of each module. Completion of the questionnaires will be worth half a homework.

Attendance (5%): In each class, I will spend a bit of time introducing the next topic, but I hope to use most of class time to go over student's questions and oversee students as they work together on assignments. Attendance is encouraged but not mandatory, as an A is achievable without class participation. When programming, some individual struggle is required, but working together can also be beneficial. Even if you find early assignments easy, I would recommend coming in to work with your peers and build relationships that may pay off when you struggle with content later in the semester.

Extra Credit: Based on your feedback, more modules will be made available to either hone areas of need or to explore additional areas of interest. These additional modules will have a due date of December 22 (the final day of the exam period) and can make up for any assignments for which a student only received partial credit.

COURSE SCHEDULE
This is a tentative course schedule and is subject to change with little or no notice.

Week 1	Intro to programming, R, and RStudio
Week 2	Reporting and Reproducibility (RMarkdown)
Week 3	Importing and Cleaning Data
Week 4	Data Manipulation (dplyr)
Week 5	Data Visualization (ggplot)
Week 6	Linear Regression
Week 7	Linear Regression
Week 8	Case study or something interesting
Week 9	Basic Statistical Analysis with R
Week 10	Intermediate Statistical Analysis with R
Week 11	Logistic Regression
Week 12	Case study or something interesting
Week 13	Case study or something fun
Week 14	Wrap-up

COURSE POLICIES

Collaboration on homework is expected and encouraged, although you must write up your own assignment. Working with others can improve your programming, but don't use anyone else as a crutch – if you get a job requiring programming, you can't bring your classmates along with you.

During any lecture portions of the class, please refrain from using all mobile devices (smart phones, dumb phones, iPads, etc...) as to keep yourself (and the teacher) focused.

ACADEMIC HONESTY POLICY STATEMENT Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst.

Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. The procedures outlined below are intended to provide an efficient and orderly process by which action may be taken if it appears that academic dishonesty has occurred and by which students may appeal such actions.

Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent. For more information about what constitutes academic dishonesty, please see the Dean of Students? website.

DISABILITY STATEMENT The University of Massachusetts Amherst is committed to making reasonable, effective and appropriate accommodations to meet the needs of students with disabilities and help create a barrier-free campus. If you are in need of accommodation for a documented disability, register with Disability Services to have an accommodation letter sent to your faculty. It is your responsibility to initiate these services and to communicate with faculty ahead of time to manage accommodations in a timely manner. For more information, consult the Disability Services website.