

**PUBHLTH 497D (1 credit)**  
**Introduction to Statistical Computing with R**  
**Fall 2017**

Instructor: Stephen A Lauer, MS  
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Class meeting time: Friday 9:05-9:55AM  
Classroom: 136 Arnold House  
Office Hours: TBD

**MATERIALS**

DataCamp :: [datacamp.com](https://datacamp.com)  
R :: [r-project.org](https://r-project.org) (or just Google "r")  
RStudio :: [rstudio.org](https://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 (60%):** Each week there will be an assignment to do in DataCamp. All assignments will be posted on the PubHlth 497D DataCamp group account and the Moodle page. Assignments will be graded based on completion. Complete assignments turned in on time will receive full credit, late assignments completed before the end of the semester will receive 80%, unfinished assignments will receive a score of 60%.

**Feedback (30%):** Each week there will be a Google Form evaluating the most recent homework assignment. Each student will learn to program at their own pace, struggle with their own issues, and have their own coding interests. The feedback forms let me know how everyone in the class is progressing and allows me to tailor the class to best fit your needs. Forms are graded based on completion, full credit for completed forms, 60% is awarded for incomplete forms.

**Classwork (10%):** Each class, students will work in groups on an exercise related to the most recent homework assignment or otherwise introduced by the instructor. Classwork will be submitted to the teacher (either by email or another method TBD) with all group members names listed. Students should have R and RStudio installed on their computers or use Amazon Web Services (provided by the teacher) to participate in class.

**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 20 (the final day of the exam period).

**COURSE SCHEDULE**

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

Date	Topic
9/8	R, RStudio, and DataCamp
9/15	GitHub, RMarkdown, and StackOverflow
9/22	Importing data
9/29	Data manipulation (dplyr)
10/6	Data visualization (ggplot)
10/13	Correlation
10/20	Simple regression
10/27	Case study or something interesting
11/3	Multiple regression
11/10	Probability
11/17	Sampling distributions
11/24	No class (Thanksgiving)
12/1	No class (Conference)
12/8	Hypothesis testing

## 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](#).