MATH/STAT 209: Introduction to Statistical Modeling, Fall 2018
Tuesday, Thursday 10:30-11:45   MRC LL1

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Description:

This course broadly covers the entire process of collecting, cleaning, visualizing, modeling, and presenting datasets. The goal is to develop skills needed to engage in the ethical and insightful analysis of data. This involves building technical proficiency, written and oral communication skills, and the ability to think critically about open ended tasks.

Our focus will be on applied statistics and data analysis rather than a detailed study of symbolic mathematics. It has a MATH designation but is not a *mathematics* course. By the end of the semester you will feel confident collecting, analyzing, and writing about datasets from a variety of fields. You will be able to use these skills to address data-driven problems in a wide range of application domains.

Course Website:

All of the materials and assignments for the course will be posted on the class website:

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https://statsmaths.github.io/stat209-f18
```

The website contains notes, assignment details, and supplemental materials. At the end of the semester, this version of the course will be archived and available for your reference.

Computing:

To facilitate your ability to actually *do* statistics, most class meetings will involve some form of computing. No prior programming experience is assumed or required.

We will use the **R** programming environment throughout the semester. It is freely available for all major operating systems and is pre-installed on many campus computers. You can download it and all supporting files for your own machine via these links:

```
https://cran.r-project.org/
https://www.rstudio.com/
```

The lab computers in Jepson are available and contain all of the required software. You will, however, need to download these on your own machine as this semester we are not meeting in a computer lab. If this poses a challenge, please let me know during the first week of the semester.

GitHub:

All of your work for this semester will be submitted through GitHub, the same platform that hosts our website. You'll need to set up a free account, which we will cover during the week of class.

Labs:

Most class meetings will have an assignment called a 'lab' associated with it. These consist of a set of questions that must be answered with either small snippets of code or short descriptive answers. Often we will start these during class, though they may sometimes be just for your own practice. Your solutions must be uploaded to your GitHub page prior to the start of the next class meeting. Labs are graded on a Pass/Fail scale.

Exams:

There will be three take-home midterm exams given throughout the semester. These are open notes and resources, though you must complete them on your own. The scheduled dates for the exams are (all dates are Thursdays):

- **2018-09-20**
- **2018-10-18**
- **2018-11-15**

The exam will be made available starting at the normal start of class on the date above; you will have 24-hours to complete it. The course has no final exam.

Data Projects:

The ultimate aim of the course is to teach you how to *apply* statistics to real-world questions. To this end, you will complete four data-oriented projects during the course of the semester. Details for each of these will be given in class. The first three projects correspond to the three midterm exams.

Final Grades:

The final grade will be determined by weighting the labs and projects as follows:

- **Labs and Participation**: 10%
- **Midterm Exams**: 30% (10% each)
- **Projects**: 60% (15% each)

To pass the course, you must also miss no more than four class meetings. Attendance requires that you arrive on-time, complete any out of class assignments for the day, and fully engage with the course material. Failing to fulfil these attendance requirements may result in a failing grade of 'V' or a reduction to your final course average at the instructor's sole discretion.

Class Policies:

The following class policies address some of the most common questions and concerns that students have. If anything is unclear, please feel free to contact me for clarification at any point in the semester.

- **Academic honesty:** Cheating and plagiarism are grave scholarly offenses and potential grounds for expulsion; they are also a major barrier to your intellectual development. You are expected

to familiarize yourself with the entirety of the University of Richmond's Honor Code. If you are confused or unsure about appropriate citation protocol or any other aspect of the Honor code, please consult me before turning in an assignment.

- **Special approval:** If you have special approval forms for extra time on exams or any other circumstances I should know about, please speak with me as early as possible so that we can best accommodate your needs.

- **Late work:** You are expected to submit all work on-time. Late data analysis reports will be accepted after the due date with a full letter grade deduction for each 24 hour period it is late (rounded up).

- **Attendance:** You are expected to both attend and participate in most class meetings. If you must be absent due to illness or other pressing need, please let me know by email as soon as possible. A habit of arriving late, failing to participate, or failing to accomplish any out of class assignments is considered equivalent to an absence.

- **Make-up work:** In instances where students have a valid excuse for missing an assessment, please get in touch with me within 24-hours of missing class to make alternative arrangements.

- **Class conduct:** During class I expect you to refrain from checking email, being on phones, or working on assignments for other classes.

- **Computers:** I except you to bring a working laptop with R and RStudio installed. If this poses a challenge, please speak with me at the start of the semester or as new problems arise.

- **Office hours**: Rather than fixed weekly office hours, I will provide blocks of open times to meet with me particularly focused around project due dates. If you find me in my office, poke your head in and I am usually happy to meet on the spot. Otherwise, please email me to make an appointment so that we can chat. Please note that appointments should be booked at least 24 hours ahead of time.

- **Email:** I will also answer questions by email (it can, in fact, be much faster than scheduling an appointment for small issues). During the week, I aim to respond within 24 hours, with emails sent over the weekend responded to by Monday morning. If your question involves code, please attach your current lab or report as that will expedite my answering your question(s).

Notice:

I reserve the right to modify this syllabus, with advanced warning, throughout the semester. If necessary, I will email the class list and post an updated version of the document on the course website.