STA 4222 / 5223: Sample Survey Design
Fall 2016

<u>Instructor</u>:   Samuel Wong   swkwong@stat.ufl.edu
Office: Griffin-Floyd 220

<u>TA</u>:   TBA

<u>Website</u>:   http://www.stat.ufl.edu/~swkwong/teaching.html
Grades will be posted on Canvas.

<u>Office hours</u>: Mon Wed   3-5pm in FLO 220, or by appointment
TA office hours TBA

<u>Textbook</u>:   No textbook is required. Our material for this class will be drawn from a variety of sources. Here are two such reference books, if you are interested in further reading:

- *Sampling: Design and Analysis* 3rd edition, by Sharon L. Lohr

- *Survey Methods and Practices*, published by Statistics Canada

<u>Lectures</u>:   Mon Wed Fri   12:50 - 1:40

<u>Objectives</u>:
The main goals of this course are (1) to learn how sample surveys are conducted and to understand the designs commonly used, (2) to learn how to analyze data collected from surveys. Towards these goals, we will spend time on the statistical theory underlying surveys, as well as practical implementation. We will look at a number of recent surveys as examples (of both what to do, and what not to do!).

<u>Topics</u>:
1. *Design of surveys*: Random, stratified, and cluster sampling; sample size calculations.
2. *Data analysis*: Calculating estimates and standard errors, ratio and regression estimation, poststratification.
3. *Practical issues*: Nonresponse, cost, data collection, causes of bias.
4. *Specific applications:* Election polling, Google PageRank, capture-recapture.

<u>Software</u>:
There are many software packages that can be used to analyze survey data. We will use the free, open-source R (http://r-project.org), which you should download and install on your computer. Instructions will be provided along with homework assignments.

<u>Course requirements</u>:
The final grade will be based on homework (25%), and three in-class tests during the semester (25% each). There will be no final exam.

- Homework will be assigned approximately weekly. They can include a mix of mathematical (theoretical, pencil & paper) problems, and survey analysis (applied, computing) problems. Homework is due at the beginning of

lecture on the specified date. No late homework will be accepted. Assignments will be equally weighted; your lowest score on the homework assignments will be dropped. You are welcome to discuss homework problems with other students; however, the solutions you submit must be written by yourself, in your own words.

- Three 50-minute tests will be held in-class, tentatively on Sept 23, Oct 28, and Dec 7. All tests are closed-book, closed-calculator, closed-phone. You may bring two double-sided pages of self-prepared notes to the tests.

Grading:

The tentative cutoffs are the usual 10% scale (90% = A, 80% = B, etc.), though will very likely be relaxed. Assigned grades are not negotiable.

Policies:

Please be familiar with the Academic Regulations listed at

https://catalog.ufl.edu/ugrad/current/Pages/academic-regulations.aspx.

Note that no make-up exams will be given with the exception of documented medical emergencies. Any accommodations requested will require appropriate arrangements with the Dean of Students Office. You are expected to abide by the Student Honor Code and exhibit academic integrity.