STAT 540/J540 SYLLABUS
Fall 2017

John M. Grego   216A Leconte
MW 2:20-3:35 Wardlaw 116   777-5070
Office Hrs: TTh 11-12:30   grego@stat.sc.edu

Text Required: *The Little SAS Book: A Primer;* 5th *Edition*, by Delwiche and Slaughter (Earlier editions are appropriate too, though likely unnecessary since the 5th edition has been available since 2012). Supplementary material includes *SAS Certification Prep Guide: Base Programming for SAS 9,* 3rd *Edition*, SAS Publishing; *Basics of R: A Primer*, by Don Edwards. Other R resources are available through the website.

Disabilities If you qualify for accommodations because of a disability, please submit a letter to me from the Student Disability Resource Center in a timely manner so that your needs can be addressed. The Student Disability Resource Center determines accommodations based on documented disabilities. Contact: 777-6142, LeConte 112A; (`sc.edu/about/offices_ and_divisions/student_disability_resource_center/`)

Learning Outcomes Students should be able to

- Identify different object types in R and understand their uses

- Carry out arithmetic and logical operations in R and SAS

- Manage datasets in R and SAS, including sorting and subsetting

- Input, output, and manage complex datasets in SAS

- Produce high-quality graphics in R

- Save SAS output in presentation-quality formats

- Understand macro commands in SAS and construct simple macro programs.

Grading Grades will be weighted in the following way:

Exam 1 (in-class)	100 points
Exam 2 (in-class)	100 points
Homework/Classwork	100 points
Project	100 points
Final Exam	100 points
Total	500 points

The project will be a simulation, coding or methodology project that can be undertaken with a partner (or partners) and will consist of a project proposal (25%), computer work (25%), and written draft (50%). I anticipate that many of these projects will explore features of SAS or R not covered in class. I use the project to enhance (or reinforce) skills you will need in your future (or current) career: written communication, practical problem-solving and teamwork.

When possible, students may take the two in-class tests in the classroom during the regularly-scheduled class time. Distance students should identify a proctor who will communicate with

the Distributed Learning Testing Coordinator (Shannon Carson; scarson@mailbox.sc.edu) to arrange test administration. Students taking the exam during the regularly scheduled class time may have to take the exam in a room other than Wardlaw 116 due to space limitations. Otherwise, students may work with the Distributed Learning Testing Coordinator (Shannon Carson; scarson@mailbox.sc.edu) to arrange a time to take the test.

The grading scale will be:

90 to 100	A
85 to 90-	B+
80 to 85-	B
75 to 80-	C+
70 to 75-	C
65 to 70-	D+
60 to 65-	D
0 to 60-	F

In accordance with standards outlined in the *Graduate Studies Bulletin*, graduate students will be assigned additional work. The class exercises and each of the three exams will have supplemental problems at the graduate level that graduate students must complete. This work will count toward graduate students' overall score for a given assignment.

Blackboard and Course Webpage All classwork should be uploaded by the student via Blackboard. I will generally use Blackboard to manage assignments, though almost all course material will be posted on my website. The URL for the class web page is `people.stat.sc.edu/grego/courses/stat540`; the website is also available through Blackboard. The web pages of Professor David Hitchcock(`people.stat.sc.edu/hitchcock/stat540.html`) and Professor Lianming Wang (`people.sc.edu/wangl/stat517_fall2010_mod.html`) are getting a little long in the tooth, but have much useful information too; be sure to refer to them for different sets of examples and code.

Classwork and Homework For portions of the course in which the texts/notes are exemplary (and that is much of the class), we will have exercises that emphasize active preparation. You will view several of the classes having already completed and posted class exercises that had been posted to Blackboard (see syllabus for dates). These exercises will count toward your homework/classwork grade.

In a typical class, I will review any class exercises, then lecture on new material while building in time for you to run the same code that I run in class. Given the nature of much of the material in this course, many lectures will be shorter than the allotted 75-minute time period.

You are encouraged to discuss homework and class assignments with your classmates and me, but all such assignments must be written independently. Do not copy any part of another student's work or computer code. You are not allowed to discuss exams with your classmates; please consult me if you have any questions. Incidences of cheating and academic dishonesty will be punished to the full extent allowed under university regulations.

Course Interaction The professor will be available in person in their office, by phone, and by e-mail. Students may also communicate with one another in person in the studio, by e-mail, or other social media. A weekly Discussion Board will be available in Blackboard to encourage student-student and student-instructor interaction.

Classroom Technology Course viewing information is available on Blackboard. The course can be watched live via Breeze/Adobe Connect (guest login should not longer be needed), or streamed or downloaded within 24 hours. Instructions for login will be posted as an Announcement in Blackboard. Since Fall 2016, links are automatically posted to Blackboard–look for Course Lectures Playlist in the upper left hand frame of the home page for the course.

I will use the computer/LCD projection system extensively in class for demonstrations and introduction of computer software; all computing done by me in class will also be posted on the webpage. We will be using two computer packages throughout the course. Increased familiarity with SAS is an important course objective. In addition, R is an important resource for exploring statistical computing.

Both packages are available on the PCs in Gambrell's basement (use your Blackboard login userid and password). SAS is available on computers 1-3 and R is available on all computers in the Cooper Technology Lounge on Level 5 of Thomas Cooper Library. Nonetheless, students should strongly consider copies for laptop use, since limited access to labs can affect course success. SAS licenses are available for student use for $85 from USC (accessed via the Purchase Computer Software tab in Self Service Carolina); the licenses are in effect from 7/1/2017 to 6/30/2018. SAS Studio, an online version of SAS, is available for free through SAS OnDemand; the course enrollment link is included in Blackboard under Course Documents. Our SAS text has an online guide for the material in 1.6-1.12, since Studio handles data input differently from your desktop version of SAS. Another free version of SAS Software, SAS University Edition, has recently become available; this link is included in Blackboard under Course Documents as well. Be sure to obtain a copy of SAS at the beginning of the semester to avoid assignment delays once we start SAS in October.

R is available for free download from the CRAN (Comprehensive R Archive Network) website (`cran.r-project.org`). Many students like to use RStudio IDE (integrated development environment) as a better-integrated development platform than standard R; a free version can be downloaded (`www.rstudio.com`).

Date	Assignment/Topic	Graded Work
8/28		
8/30	Edwards 1-4	
9/4	No class (Labor Day)	
9/6	Edwards 5-8	Class Exercise 1
9/11		Class Exercise 2
9/13	Edwards 9-12	
9/18		HW 1, Class Exercise 3
9/20		
9/25	Random Variables	Class Exercise 4
9/27	Stochastic Simulation	HW 2
10/2		Class Exercise 5
10/4		Exam 1
10/9	SAS 1	
10/11	SAS 2	Class Exercise 6
10/16	SAS 3	
10/18		Class Exercise 7
10/23	SAS 4	
10/25		HW 3
10/30	SAS 6	
11/1		Class Exercise 8
11/6	SAS 5	
11/8		Exam 2
11/13	SAS 7	Proposal Due
11/15		Class Exercise 9
11/20		HW 4
11/22	No Class (Thanksgiving)	
11/27	SAS 8	
11/29		Project Due
12/4	SAS Supplementary	
12/6		Class Exercise 10

The final exam will be due Thursday, December 14 at 5 PM