

## STAT 541, Advanced SAS Programming -- Spring 2019

### Instructor:

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Course Web Page: <http://people.stat.sc.edu/hitchcock/stat541.html>

**Class Meeting Times:** MWF, 10:50 am - 11:40 am, Wardlaw College 116 **or via distance by streaming video**

**Office Hours:** Mon 1:10-2:00 pm, Tues 11:00 am-12:00 noon, Wed 1:10-2:00 pm, Fri 1:10-2:00 pm, or **please feel free** to make an appointment to see me at other times.

**Textbook:** *SAS Certification Prep Guide: Advanced Programming for SAS 9* (4th edition), by SAS Institute. (3rd edition is fine too if you have that one)

**Required Computing Resources:** You will need to create a student account in **SAS OnDemand for Academics** in order to access (for free) SAS Studio or SAS Enterprise Guide. Instructions are given on the course web page. You will receive an enrollment link in an email from the course instructor. In addition, SAS is available in some of the labs around campus.

### Course Outline:

PROC SQL (Queries, joins, table creation and management, indices and views)	4 weeks
Macro variables, macro programs and macro storage	4 weeks
Creating and combining data	1 week
Lookup tables; formatting data and modifying data sets	3 weeks
Efficient SAS Programming and best practices; efficient sorting and queries	2 weeks

**Purpose:** To help students learn advanced SAS computing programming skills, including SQL queries; data management, modification and formatting; and SAS macro programming. To help students learn efficient methods of SAS programming.

**Learning Outcomes:** Students should be able to

- Perform SQL queries and data management using PROC SQL
- Interpret and write complex SAS macro programs
- Manage, combine, modify, and format data sets in SAS
- Write SAS code that runs efficiently
- Sort and query SAS data sets efficiently

### Class Lectures:

You may attend the lectures live on Mondays, Wednesdays, and Fridays in Wardlaw 116, or you may watch them live online via Adobe Connect, or after the fact by viewing the lectures that are posted on the Blackboard STAT 541 course page (click the Course Lectures Playlist link on the left side of the page). Information about how to access online lectures has been emailed to you.

**Homework:**

Homework exercises will be assigned on the course web page. Due dates will be given on the course web page. Late homework will be penalized. The homework will typically involve writing some programs/code in SAS.

Each student's homework must be done independently. You may ask each other informal questions about the homework, but everyone is to do his/her own work. If homework is found to be copied, all students involved will receive a 0. Of course, you may always ask me questions about the homework. [To be clearer, students can ask each other informal ORAL questions about homework, but **cannot look at or copy each other's homework papers or code**. All submitted homework must be their own work.]

**Honor Code:** Every student has a role in maintaining the academic reputation of the university. It is imperative that you refrain from engaging in plagiarism, cheating, falsifying your work and/or assisting other students in violating the Honor Code.

**Student Disabilities:** Any student with a documented disability should contact the Student Disability Resource Center at 777-6142 to make arrangements for appropriate accommodations.

**For Graduate Students:**

Since 500-level courses are required to contain more rigor for graduate students than for undergraduates, there will be an extra project required for graduate students. Undergraduate students may do this project for extra credit. The project will be due near the end of the semester. More information will be given out later in class.

**Exams:**

There will be two midterm exams and a final exam. All these exams will consist of multiple-choice questions about the concepts studied in the class, plus a short free-response coding problem. The midterm exams will be given in the classroom during the regularly scheduled class time. If you are not able to come to campus for the exams, you must contact the distance education office to set up a proctor. If you are on campus and not able to attend class live, you may either contact the distance education office to set up a proctor, or may arrange with me to take it at some other time. More information will be provided about these options closer to the test dates.

**Grading:**

For **undergraduate students**, the course grade will be based on tests (48%, i.e., 16% each) and homework (52%). For **graduate students**, the course grade will be based on tests (45%, i.e., 15% each), homework (50%), and the required project (5%). The overall course average will result in the following grades: 90-100 = A, 87-89 = B+, 80-86 = B, 77-79 = C+, 70-76 = C, 67-69 = D+, 60-66 = D, 59 and below = F.

**Tentative Course Schedule:** Mon-Wed-Fri, January 14 through April 29, except:

No class (MLK Day): January 21 (Monday)

Last day to withdraw without "WF" grade: March 4 (Monday)

No class (Spring Break): March 11, 13, 15 (Monday, Wednesday, Friday)

Friday, Feb. 15: Exam 1

Wednesday, April 3: Exam 2

Friday, May 3, 9:00 a.m.: final exam