

STAT 541, Advanced SAS Programming -- Spring 2021

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, LeConte College 210 **or via Blackboard Collaborate Ultra on live or recorded video**

Office Hours: Mon 1:05-2:00 pm, Tues 11:00 am-12:00 noon, Wed 1:05-2:00 pm, Fri 1:05-2:00 pm, or **please feel free** to make an appointment to see me at other times.

Textbook: *SAS Certified Professional Prep Guide: Advanced Programming Using SAS 9.4* (First edition), by SAS Institute. ISBN: 9781642954678. Publication Date: October 2019

Required Computing Resources: You will need to create a student account in **SAS OnDemand for Academics** in order to access (for free) SAS Studio. 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); Macro variables, macro programs and macro storage; Creating and combining data; Lookup tables; formatting data and modifying data sets; Functions, subroutines, and advanced character functions; SAS Programming and best practices; efficient sorting and queries.

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 LeConte 210, or you may watch them live online via Blackboard Collaborate Ultra, or after the fact by viewing the lectures that are posted on the Blackboard STAT 541 course page (click Blackboard Collaborate Ultra link, then navigate to the recordings using the top left corner menu). Information about how to access online lectures will be 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 and will not be accepted after solutions have been posted. The homework will typically involve writing some programs/code in SAS and both the code and programming comments will be graded.

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 instructor to arrange to take the exam either at another time, or online via a lockdown browser. 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 (45%, i.e., 15% each) and homework (48%) and Blackboard quizzes (7%). For **graduate students**, the course grade will be based on tests (42%, i.e., 14% each), homework (45%), Blackboard quizzes (6%), and the required project (7%). 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.

Course Schedule: MWF, Jan 11, 2021 - Apr 26, 2021, and note:

No class (MLK Day): January 18 (Monday)

No class (Wellness Holiday): March 12 (Friday)

Last day to withdraw without "WF" grade: March 27 (Saturday)

No class (Wellness Holiday): April 21 (Wednesday)

Friday, Feb. 12: Exam 1

Wednesday, March 31: Exam 2

Wednesday, April 28, 9:00 a.m.: final exam