

STAT 506: Statistical Programming and Data Management

Syllabus
Spring 2022

CRN 27863 [3 credit hours]
MWF 4:30pm-5:20pm in LWSN B151

Description: Use of the SAS software system for managing statistical data. The SAS environment. Data description. Data access and management. SAS macro language and application development.

Learning Objectives:

- Students will be introduced to SAS programming syntax and the Base SAS environment.
- Students will have the ability to perform various data manipulation techniques in SAS.
- Students will have a strong foundation for further use and study of the SAS language.
- Students will be prepared to study for the SAS Base Programmer Certification exam.

Prerequisites: An introductory Computer Science course equivalent to CS 158 or 154 or 180 and a calculus-based introductory statistics course such as STAT 350, STAT 503, or STAT 511.

Instructor: Timothy (Tim) Keaton (keatont@purdue.edu, 765-494-4502)

In-person office hours in MATH 220: Mon, Wed & Fri 2:00-4:15pm and by appointment

Online office hours (purdue.webex.com/meet/keatont): Tues & Thurs 2:00-4:15pm and by appt.

These times may have to be adjusted in any given week due to the scheduling of other meetings; I will announce any changes in advance via Brightspace.

Time Zone: Be aware that all times stated in this class are for the Eastern time zone (W. Lafayette local time): EST UTC-5 until Mar. 13, EDT UTC-4 afterwards.

Text: None. We will use materials directly provided by SAS, which will all be posted on Brightspace.

Lectures & Class Format: Class lectures for each class day will be posted in advance on Brightspace. It is encouraged that you watch these before attending class, if possible. Classtime will be used for discussion, examples, playing with code, and review of some of the important topics from the day's lecture.

Attendance: Class attendance is *not mandatory* with the exception of the exams. If you must miss class at any point in time during the semester, please reach out to me via email so that we can communicate about how you can maintain your academic progress. If you find yourself too sick to progress in the course, notify your adviser and notify me via email. We will make arrangements based on your particular situation. Please follow the guidance provided by Protect Purdue, and be aware of the [initial guidelines set for Spring 2022](#). Our course Brightspace also includes a link on Attendance and Grief Absence policies under the University Policies menu.

Computing: All course materials are available on Brightspace (purdue.brightspace.com). Here you will find lecture notes, assignments, important announcements, grades, and everything else related to this course. We will use the SAS statistical software on Windows personal computers to complete homework assignments. See Brightspace for instructions on installing/accessing SAS. **DO NOT** wait to get SAS available for your use. I will not give exceptions for late assignments because of SAS/computing issues; it is your responsibility to have access to SAS in time to complete the assignments.

Grades: Your grade will be based on the following:

- Homework 20 %
- Quizzes 15 %
- Exam 1 25 %
- Exam 2 25 %
- Final Project 15 %

You should expect the normal letter grade cutoffs: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, below 60 = F. There will be no plusses or minuses (+/-). Any adjustment to the cutoffs will be done at the end of the semester.

Homework: There will be regular homework assignments (you can expect 7 assignments this semester). If you think completing assignments will be a problem, then I suggest you take the course another semester as the assignments will comprise a fair amount of your grade. All assignments will count -- there are no dropped scores; you will learn SAS coding better by actually doing the work. You should feel free to discuss the problems with others in the class, but your work/code should be your own. Assignments will be turned in via Brightspace.

You are encouraged to work on corresponding homework after we cover the relevant material (not the day before it's due!). Homework due dates will be posted on Brightspace. You may turn in an assignment up to 24 hours late but at an automatic 50% deduction; otherwise other late assignments will be given no credit.

Important: Make sure you actually submit your assignments on Brightspace! There are many ways to double check this; I suggest going back to the assignment itself, or for more of an overview, go to "Course Tools" > "Assignments" and check there. You should also receive a confirmation email. Do not wait until grades are released to realize you didn't actually upload it or you just uploaded the instructions instead of solutions.

Quizzes: Once every week or every two weeks, there will be a short quiz administered through Brightspace (you can expect 8 quizzes this semester). Dates will be announced in class and on Brightspace. The lowest quiz grade of the semester will be dropped. These quizzes are meant to be taken *individually*.

Exams: We will have two exams throughout the semester; dates will be announced in class and on Brightspace. As of January 2022, the plan and hope is for both exams to be administered *in person* in the normal classroom during the normal class time. This may be adjusted if warranted by the campus health situation at the time of the exams. There is no final exam during final exam week.

Final Project: We will have a final project due during final exam week. Details will be posted on Brightspace midway through the semester, and the project will also be turned in through Brightspace.

Communication: I expect the same communication you expect from me. If I were to change an assignment, I would think you would want to know about the change BEFORE the due date. Well then, I, of course, would like to know beforehand if you think there will be a problem. Be it an academic conflict or conference, life issues, or anything else (even if you feel lost and think you might do poorly on one of the exams), I expect to be made aware of it before it happens. If you come to me afterward there is little I am willing to do that I haven't already spelled out here in the syllabus, and you will find that I rarely if ever will deviate from what is stated under these circumstances.

Adaptation/Disability: Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at drc@purdue.edu or [765-494-1247](tel:765-494-1247).

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Nondiscrimination: Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach their own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. Purdue's full Nondiscrimination Policy Statement can be found at http://www.purdue.edu/purdue/ea_eou_statement.html.

Mental Health/Wellness Statement:

- If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [WellTrack](#). Sign in and find information and tools at your fingertips, available to you at any time.
- If you need support and information about options and resources, please contact or see the [Office of the Dean of Students](#). Call 765-494-1747. Hours of operation are M-F, 8 am - 5 pm.
- If you find yourself struggling to find a healthy balance between academics, social life, stress, etc. sign up for free one-on-one virtual or in-person sessions with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on BoilerConnect. If you have any questions, please contact Purdue Wellness at evans240@purdue.edu.
- If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.

Classroom Guidance Regarding Protect Purdue: The [Protect Purdue Plan](#), which includes the [Protect Purdue Pledge](#), is campus policy and as such all members of the Purdue community must comply with the required health and safety guidelines. Students are expected to stay up to date with these campus policies. Students who do not comply with the required health behaviors are violating the University Code of Conduct and will be reported to the Dean of Students Office with sanctions ranging from educational requirements to dismissal from the university.

Any student who has substantial reason to believe that another person in a campus room (e.g., classroom) is threatening the safety of others by not complying (e.g., not wearing a mask) may leave the room without consequence. The student is encouraged to report the behavior to and discuss next steps with their instructor. Students also have the option of reporting the behavior to the [Office of the Student Rights and Responsibilities](#). See also the [Purdue University Bill of Student Rights](#).

Basic Needs Security: Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. There is no appointment needed and Student Support Services is available to serve students 8 a.m.-5 p.m. Monday through Friday. Considering the significant disruptions caused by the current global crisis as it related to COVID-19, students may submit requests for emergency assistance from the [Critical Needs Fund](#).

Academic Integrity: Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling [765-494-8778](tel:765-494-8778). While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

- “As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue.” <https://www.purdue.edu/provost/teachinglearning/honor-pledge.html>
- From “Academic Integrity: A Guide for Students”:
“Students who cheat gain an unfair advantage over honest students. Although reporting suspected or observed cheating may seem difficult, failure to do so hurts you as well as Purdue. Observations or knowledge of academic dishonesty should be reported immediately to course instructors. Even if your observations are reported anonymously, such information may encourage instructors to do further investigation, detect patterns of cheating or impose effective preventive measures.”
- **Copying homework is not permitted**, and for a first offense will be awarded **0 credit** for all parties involved. In my experience, if you let someone copy your homework, you are not helping them because in almost all cases they end up losing as many points on the next exam as your homework provided them. If you help them just a little bit, they will lose a few points; if you help them a lot, they will lose a lot of points, etc. There are no shortcuts to learning statistics or a new programming language; you have to practice what we learn in class. Any offense will warrant consideration for submission to the Office of the Dean of Students for adjudication.
- Uploading of course homework or quiz/exam materials to “helpful” websites such as Chegg, Course Hero, etc. is not permitted. Collaboration on quizzes is not allowed. Any offense will warrant consideration for submission to the Office of the Dean of Students for adjudication.
- Anyone caught **cheating on an exam will be awarded an F grade** in the course and immediately be reported to the Office of the Dean of Students for adjudication.

Campus Emergency: In the event of a major campus emergency, course requirements, deadlines, and grading are subject to change that may be necessitated by a revised calendar or other circumstances beyond the instructor’s control. Relevant changes to this course will be posted on Brightspace and I will send an email. Additionally, the University has given the following guidelines:

- To report an emergency, call 911. To obtain updates regarding an ongoing emergency, sign up for Purdue Alert text messages, view www.purdue.edu/ea.
- There are nearly 300 Emergency Telephones outdoors across campus and in parking garages that connect directly to the PUPD. If you feel threatened or need help, push the button and you will be connected immediately.
- If we hear a fire alarm during class we will immediately suspend class, evacuate the building, and proceed outdoors. Do not use the elevator.
- If we are notified during class of a Shelter in Place requirement for a tornado warning, we will suspend class and shelter in the appropriate location.
- If we are notified during class of a Shelter in Place requirement for a hazardous materials release, or a civil disturbance, including a shooting or other use of weapons, we will suspend class and shelter in the classroom, shutting the door and turning off the lights.
- Please review the Emergency Preparedness website for additional information:
http://www.purdue.edu/ehps/emergency_preparedness/index.html

STAT 506 Topics and *Tentative* Schedule
(check Brightspace for announcements, changes, and specific dates)

Week	Dates	Lectures / Events
1	Jan. 10-14	Programming 1: Essentials
2	Jan. 17-21	Monday, Jan. 17: Martin Luther King Jr. Day, no classes Programming 1: Accessing Data
3	Jan. 24-28	Programming 1: Exploring and Validating Data
4	Jan. 31 - Feb. 4	Programming 1: Preparing Data
5	Feb. 7-11	Programming 1: Preparing Data Programming 1: Analyzing and Reporting on Data
6	Feb. 14-18	Programming 1: Analyzing and Reporting on Data Programming 1: Exporting Data and Reports
7	Feb. 21-25	Programming 1: Using SQL in SAS
8	Feb. 28 - Mar. 4	Exam 1 review <i>Exam 1: Programming 1 (exact day TBA)</i> Programming 2: Controlling DATA Step Processing
9	Mar. 7-11	Programming 2: Summarizing Data
10	Mar. 14-18	Monday, Mar. 14 - Saturday, Mar. 19: Spring Vacation, no classes
11	Mar. 21-25	Programming 2: Manipulating Data with Functions
12	Mar. 28 - Apr. 1	Programming 2: Creating Custom Formats Programming 2: Combining Tables
13	Apr. 4-8	Programming 2: Processing Repetitive Code
14	Apr. 11-15	Programming 2: Restructuring Tables Programming 2 extra: Arrays
15	Apr. 18-22	Exam 2 review <i>Exam 2: Programming 2 (exact day TBA)</i> Macros 1: Introduction to Macros
16	Apr. 25-29	Macros 1: Macro Variables Macros 1: Macro Programs
17	May 2-7	<i>Final Project due (exact day/time TBA)</i>

Anything and everything stated above is subject to change through in-class/Brightspace announcement.

Last updated 2022-01-08