Stat196k Syllabus

6 minute read

Course Description: Statistical analysis of large, complex data sets. Topics include memory efficient data processing, the split-apply-combine strategy, rewriting programs for scalability, handling complex data formats, and applications such as statistical learning, dimension reduction, and efficient data representation. Students will access data and run code on remote servers. 3.0 Units. Letter Graded.

Term: Spring 2021, CSU Sacramento

Instructor: Dr. Clark Fitzgerald About me

Contact:

- Communication For Current Students
  Asking questions during live class is the fastest and most efficient way to communicate. Outside of class, the best way to communicate is through Discord and Canvas. For private matters, you can come to office hours or email me at fitzgerald@csus.edu.

Prerequisites: (STAT 1 or STAT 50) and (MATH 26A or MATH 30) and (STAT 128 or CSC 15) or consent of the instructor.

Course Meetings: MWF, 12-1pm via Zoom

Office Hours: after class, same Zoom meeting or by appointment

Drops: College Drop Policy (https://www.csus.edu/college/natural-sciences-mathematics/mathematics-statistics/_internal/docs/drop-policy.pdf) Note that for the first two weeks, you can drop yourself on My Sac State (https://my.csus.edu/).

Schedule: See schedule page

Course Materials

Textbook: All textbooks and course materials will be freely available online to Sac State students, either through public websites, or with electronic access from the library.

Software:

1. Unix Shell. We'll use the shell for all of our interactions with servers. If you're on a Mac or Linux, then you can open a terminal and start typing commands. If you're on Windows, then install Windows Subsystem for Linux (WSL) (https://docs.microsoft.com/en-us/windows/wsl/install-win10).
2. Git version control. We'll use git to synchronize our local files with files on the servers.
3. Terminal based text editor: vim, emacs, or nano. For class I will use vim and tmux (terminal multiplexer) to edit files locally and on servers.

Computer and Internet Access: You'll need a computer or tablet with reliable internet to attend course meetings and office hours through Zoom video. I highly recommend you turn on your video so that you can have better interactions with your classmates. Headsets and noise cancelling headphones can be very useful if you live with other people.

Other Technologies: We will also make videos, so you'll need access to a smartphone, webcam, or at least a microphone. Video editing software is nice, but not essential.

Inclusive Access: If you have trouble obtaining any of these materials, please contact me ASAP so we can work out alternatives. Many resources are available to help you succeed. For example, I can request a long term laptop checkout (https://www.csus.edu/information-resources-technology/teaching-learning/laptop-checkout.html) for you.

Grading

Percentage	Category	Description & Purpose	Collaboration Policy
35	Homework	The core course component where you will practice data analysis and programming. I will grade a subset of the prompts in the assignment and provide you with feedback. The assignment submission comments are also where you can communicate privately with me.	Talking about problems is allowed, but you must state who you work with.
15	Skills	Short, self contained assignments to reinforce and practice concepts from lecture. Some will be automatically graded, some will be graded on a binary scale (full points or 0), and some will receive full points if you turn anything in. I'll provide solutions so you can check your answers.	Collaboration is allowed.
15	Engagement	Setting up online profiles, Canvas discussions, making review videos, and anything that doesn't fit cleanly somewhere else. The purpose is to provide experience producing different media, and to make our online class feel more like a community by having some interaction with each other.	Collaboration is allowed.
15	Final Project	Culminating project that allows you to do something more involved and open ended than the homeworks. Treat this as an opportunity to show off your skills, and make something that you can show to a potential employer or graduate school.	You can choose to work in a group.
10	Midterm	Motivates the video review assignment. 😁 This will give me some idea of your understanding, and what we need to spend more time on.	Do not collaborate.
10	Final Exam	This is a standard comprehensive final exam to assess how well you've learned the class concepts.	Do not collaborate.

I designed this grading scheme to minimize stress on you, the students. The exams are not worth a large percentage of your grade, and you will have plenty of time to finish them.

Late Assignments: Due dates keep you on track; they benefit you! If you realize you're going to be late, then please submit what you have on the due date, and let me know in a submission comment what's going on and when you expect to finish. If you have a personal emergency or schedule disruption, then communicate with me, and tell me what you need. A one time due date extension of a few days is no problem in most cases.

Final Grades: The course grade cutoffs will follow the conventional scheme:

- 90-100% A
- 80-90% B
- 70-80% C
- 60-70% D
- Below 60% F

I may adjust these grade cutoffs lower, so that students receive higher grades. I will not raise the cutoffs. This means, for example, that if you score 80% of the points, then your course grade will be a B- or better.

Academic Honesty

All assignments and midterms are open book, open notes, open internet. If you happen to find a solution for the exact question online, please let me know.

Submit your own assignments, always. Don't copy others' work, because that wastes everyone's time. On the above assignment sections, "Collaboration is allowed" means you can help each other and work freely together, no worries. "Do not collaborate" means you shouldn't receive any outside assistance, so don't talk about them. The only exception is that you can ask me, the instructor, for clarification.

The category of the homework requires the most explanation. You may work together and talk through the problems, but you need to understand each and every step in the solution that you turn in. If you work together, please note on your submission who you worked with, and on which parts.

It's your responsibility to know and adhere to the University Policies regarding academic honesty (https://www.csus.edu/student-affairs/student-conduct/academic-dishonesty.html), in particular, the Academic Honesty Policy and Procedures (https://www.csus.edu/umanual/student/stu-100.htm). I will fully prosecute violations of these policies. If you have any question about what's appropriate, please ask.

Class Meetings

Class will meet synchronously through Zoom, unless otherwise announced.

Attendance: Class is where we'll cover the core material and do practice problems and other interactive activities, so plan on attending. Experience shows that students perform better when they attend class, even online.

Participation: I will occasionally “warm call” students for class discussion questions by cycling through the Zoom attendees. The purpose of calling on you is to increase your engagement with the material, and to provide you with practice speaking and participating in a virtual environment. You may skip your turn, but I encourage you to participate.

Studying: Expect to spend approximately 2 hours on activities outside of class for every 1 hour in class. Some weeks will require more, some less. Depending on your background, programming might take longer, or maybe you’re working extra hard to earn a good grade. That’s OK!

Recording: I plan to record class meetings and make them available if you need to miss class for any reason. Zoom recordings will be available through Canvas for current students in this course for this semester only, and not to the general public. Do not make personal recordings of class meetings, or allow anyone not in this course to access course video recordings. This policy means that students can have the same expectation of privacy in a virtual classroom as they have in a physical classroom. Zoom breakout rooms are not recorded.

Updated: January 21, 2021