

STA 207 Winter 2021
Statistical Methods for Research II

University of California, Davis

Instructor and TA information

Instructor:	Dr. Shizhe Chen	TA:	Mr. Yejiang Zhu
Email:	szdchen@ucdavis.edu	Email:	yjzhu@ucdavis.edu
Zoom link:	link	Zoom link:	link
Hours:	W 4:00 to 6:00 pm, PST	Hours:	Th 12-1 & 5-6 pm

Basic information

- Objectives: Students will learn the basic concepts and methods related to the aforementioned topics. Students will also practice data analysis and present the analysis results. Data analysis will be done using a professional level software such as MATLAB, SAS or R.
- Topics: Linear models, linear mixed models, repeated measures, generalized linear models, model selection, analysis of missing data, multiple testing procedures, etc.
- Prerequisites: STA 206; Knowledge of vectors and matrices.
- Lecture: Pre-recorded short videos (available on Canvas)
Live session with student participation W 10 - 10:50 am ([link](#), to be recorded, starting from the second week)
- Discussion: W 11 - 11:50 am ([link](#))
- Course Website: Canvas (check regularly!)
[mybinder](#) and [Github](#) (for course notes)
- Course schedule: [link](#)
- References: *Applied Regression Analysis and other Multivariable Methods*, by Kleinbaum, et al.
ANOVA: A Short Intro Using R, by Meier ([link](#))
An Introduction to Statistical Learning, by James, et al.
- Software: R 4.0.3 (available at <http://www.r-project.org/>)
Rstudio 1.3.1093 (available at <https://www.rstudio.com/>)
Zoom (see the UCD [Zoom Guide for Students](#))

Grading

Homework: 36 points
Projects: 46 points
Participation: 18 points
Bonus: 5 points

A	B	C	D	F
≥ 90	89-80	79-70	69-60	<60
Note: +/- will be added as appropriate.				

See the course schedule for more details ([here](#)).

Communication

Zoom: Live sessions, office hours, mid-quarter review, and practice talks are all held virtually via Zoom. Instructors might interact with you via instant polls, assign you to breakout rooms, or ask you to share your screen. You may use the “raise hand” or “chat” functions to request to be unmuted for questions during live sessions or office hours. It is recommended to have your videos on during any live sessions to improve engagement and efficiency. However, it is understood that you opt out for video due to, e.g., privacy concerns, technical difficulty, etc.

Administrative questions: Come to office hour or send emails to the instructor **and** TA(s). Improper emails will **not** be replied ([email etiquette](#)). Please also include the course name, session number, and student ID number in the email title (e.g. [STA108B01ID#000000000] Questions regarding Canvas).

Questions about course materials: Come to office hours, or post on Piazza. Do not ask the instructors to help you debug (...because we might not know how!).

Weekly surveys: Feedbacks are collected every week via the weekly survey on Canvas. See details in Page 5.

Collaboration and academic integrity

You are encouraged to study in groups and use other’s code, but you should write up the submissions independently. If you discuss homework/project with others or use other’s code, always clearly acknowledge their name(s) in your reports. Failing to given proper acknowledgment will be counted as **plagiarism**.

Academic misconduct includes copying from, or referencing without proper acknowledgment, external sources or your peers, etc. Students must abide by the **UC Davis Code of Academic Conduct**. *All teaching faculty at UC Davis are instructed to report all suspected cases of cheating and other misconduct to the Office of Student Support and Judicial Affairs (<http://ossja.ucdavis.edu/>), whether the student admits to it or not. Furthermore, “If academic misconduct is admitted or is determined by adjudication to have occurred, instructors may assign a grade penalty no greater than “F” for the course in question. If a report is pending at the end of an academic term,*

instructors should assign a temporary grade of "Y" for the course until the report is resolved."

Campus support

Remote learning: Check the [student resources](#) page for resources to support remote learning.

Coronavirus: Check the [coronavirus campus information](#) page for recent development of coronavirus and campus policies.

Disability: Students with disabilities requiring accommodations should contact the instructor as soon as possible; see <https://sdc.ucdavis.edu/>.

Other supporting resources: UC Davis provides various supporting resources for students, see [campus resources](#).

Classroom policy

Student behavior should fit the [UC Davis policy on student conduct and discipline](#). Please respect your fellow students, teaching assistants, and the instructor in virtual lectures, discussion sessions, office hours, and on the discussion board. Please refrain from any other activity that disrupts the course of the lecture. Derogatory or inflammatory comments about other individuals, cultures, groups, or viewpoints are not tolerated. As per UC Davis policy, instructors and teaching assistants may direct a student to leave a class immediately if the student's behavior is disruptive.

Homework

Overview: Assignments may include data analysis with R, interpretation of analysis results, and rigorous derivations. These assignments are carefully designed to facilitate remote learning. It is recommended to work on corresponding questions while or after watching each snippet of recordings. In addition, we will practice self-grading on these assignments and, moreover, study the effects of self-grading using de-identified data.

Submission: Assignments should be submitted electronically on Canvas by **5 pm** on the due date. Late submissions are **not** accepted. Submissions should be HTML files

knitted from R markdown.

Grading: Each assignment is worth 18 points. A rough grading rubric will be provided along with the solutions for the assignment. For every assignment, the grading works as follows.

- You will grade every questions in your own assignment, and submit the grades in the survey in the following week.
- You need to mark two questions to be graded by the reader(s) in the designated space in your assignment.
- The total points for each assignments is then the summation of your self-graded scores, *with the two marked questions replaced by the reader's scores*.
- The final grade for each assignment is then $1.8 \times \sqrt{x}$, where x equals the total points, e.g.,

$$1.8 \times \sqrt{60} \approx 14, 1.8 \times \sqrt{80} \approx 16, 1.8 \times \sqrt{100} \approx 18.$$

Project

Overview: The course projects will require you to perform data analysis in R, write up your findings as a data analysis report, discuss your reports with other teams, and create a 15-min video presenting the analysis. Note that there are an individual project and two team projects (**four members**). **All reports and presentations will be posted online and shared among students.**

Submission: Assignments should be submitted electronically on Canvas by **5 pm** on the due date. Late submissions are **not** accepted. Submissions should be HTML files knitted from R markdown. For the final presentation, the submission should include an MP4 file (<300 MB) and a link to the Github repository for reproducing the presentation. Two submissions of Project 1 need to be submitted by each student on their own.

	Due date	Points	Submission
Project 1: report	Jan 29th	8	individual
Project 1: discussion	Feb 5th	5	individual
Project 2: report	Feb 12th	8	team
Project 2: discussion	Feb 19th	5	team
Project 3: report	March 5th	0	team
Project 3: discussion	March 12th	5	team
Project 3: presentation	March 15th	15	team

Discussion: The discussion report is a replacement for peer-review reports. After the submission of each project report, a group of three teams will meet and discuss each other's report. Each discussion group shall arrange at least one hour to meet and discuss. Each team/individual will write up their own discussion report that summarizes the comments from their "reviewers".

Grading: See the point allocations in the table above, or in the course schedule ([link](#)). Grading rubrics are available [here](#).

Presentation: Each team (up to 4 members) will create a 15-minute video to present their final project. The target audience are students in this course. The recording should be 15-min long and less than 300 MB in size. There are no other requirements in the styles or forms of the presentation.

Bonus points (up to 2): Teams that receive high votes in the final survey (*best presentation*) will be rewarded with up to 2 bonus points.

Collaboration: It is strongly recommended to create a Github repository for the team project(s) from the start. It is designed for asynchronous collaboration with many handy features. It also helps protect you from potential free-riders (see *Other policies on grading* for detailed penalties). Moreover, the final submission requires a link to the Github repository to reproduce the submission.

Mid-quarter review: Each team can sign up to meet with the instructor in Week 6. The review meeting is intended to help you review your progress and suggest future plans. The sign-up will be open on Canvas by Feb 1st. This meeting is optional, but attendance will be counted as one point in the participation.

Practice talk: Each team can sign up to give a practice talk to the instructor in Week 10. The sign-up will be open on Canvas by Mar 1st. The practice talk is optional, but (i) attendance will also be counted as one point in the participation, and (ii) it should lead to improvement in the recorded presentation.

Participation

The total amount of points for participation is capped at 18. There are three ways to earn these points.

Weekly survey

Weekly surveys are due every Monday at 5 pm (PST), starting from the second week. You will earn one point for every survey so long as you complete the survey with honesty. The survey contain a few questions mainly about your progress and experience in the course so far. The instructor, TA(s), and reader(s) will use the survey results to adjust the course materials, lecturing styles, grading scheme, etc. Among all ten surveys, Surveys 1 and 10 are somewhat special.

Survey 1: This survey will ask for additional information such as the time zone, preference for office hours, past experience with remote learning.

Survey 10: This survey will be due at 5 pm PST Wednesday March 17th. In this survey, you can nominate *most helpful classmates* on Piazza and *best presentation*.

Live session

Participating in the live sessions counts towards the participation grade. In order to be recognized, you can ask a question about the materials being discussed, share your thoughts about the subject, serve as the reporter for your breakout room, etc. If you do so in any sessions, report it in the weekly quiz within the same week to receive the point. Please note that

- you can earn at most one point per week,
- anonymous polls or comments do not count,
- questions or comments of low quality do not count,
- and all live sessions will be recorded and released.

Materials in the live sessions are loosely tied to the course materials. To maximize your gains, it is strongly recommended to watch all recordings of that week before the live session, or at least to review them after the session.

Online discussion

Students are expected to participate in discussion on (Piazza). The main purpose for using a discussion board is to provide community support *among students in this class*. The instructor and TA will monitor the discussion board, but will try to minimize their influences on the process. In other words, you are expected to help other students and seek for help among your fellow students. You can access Piazza in the Canvas page for this course. Detailed rules for the participation points (3 to 8) will remain unspecified to avoid exploitation.

Bonus points (up to 3, not limited by the 18-point cap): Individuals who receive high votes in the final survey (*most helpful classmates*) will be rewarded with up to 3 bonus points. See Prof. Temple Lang's suggestion on how to ask good questions ([link](#)).

Other policies on grading

- All submissions should be reproducible. Your RMD scripts should be available upon requests. If your reports cannot be reproduced, There will be a heavy penalty on irreproducible submissions.
- There will be no extension without a documented, legitimate reason that is outside of your control. Social conflicts or a heavy workload are unacceptable excuses. It is required to contact the instructor no less than 14 days before the due date for any submissions, except for emergencies. No exception can be guaranteed and decisions will be made on a case-by-case basis.
- The team project(s) should be a collaborative effort. In the submitted report, you need to make clear each member's responsibilities, such as leading the team, data wrangling, data exploration, literature review, data analysis, visualization, report writing, presentation, etc. Free-riders will receive a **heavy penalty** (up to 50% of points earned in the final tutorial).
- Any grading dispute must be submitted in writing to the instructor within one week after the grade is available on Canvas. No change will be made before the grade is posted or after this deadline. Reasons irrelevant to your academic performances will **not** be considered or responded. These reasons include but not limited to "I need to pass this class to graduate", "I will be in academic probation if I failed this class", "It's not uncommon that professors would consider this situation when assigning grades", etc.

Recommendation letter policy

As a general policy, the instructor does *not* write recommendation letters for any students who are currently enrolled in his course(s). Once you have completed the instructor's course (and your final grade is available), it is acceptable to ask for a recommendation letter.

However, it is best to obtain recommendation letters from faculty members that you have worked with outside of a classroom setting, e.g., as a research assistant. If you do not have any non-classroom interaction with the instructor and/or have not been an active participant in this course, the instructor will not be able to write you a strong recommendation letter.

Auditing policy

The course is open for auditing as long as the auditors do not impede registered students' access to limited teaching resources. The auditor can choose to work with any team on the course project, but the auditor's contribution needs to be clearly acknowledged. There can be at most one auditor on each team. Exemption is granted on a case-by-case basis. The instructor reserves the right to grant access to Canvas or other course materials to auditors.

Academic (and legal) misconduct: Course materials

Lectures and course materials, including presentations, tests, outlines, and similar materials, are protected by U.S. copyright law and by University policy. The instructor is the exclusive owner of the copyright in those materials. You may take notes and make copies of course materials for your own use. You may also share those materials with another student who is enrolled in or auditing this course. You may not reproduce, distribute or display (post/upload) lecture notes or recordings or course materials in any other way — whether or not a fee is charged — without my express prior written consent. You also may not allow others to do so. If you do so, you may be subject to student conduct proceedings under the UC Davis Code of Academic Conduct.