Stats 20: Syllabus

Introduction to Statistical Programming with R
UCLA, 2024 Winter

Contents are subject to change. Last updated on January 6, 2024

Contents

Course Description

Designed to prepare students for upper division work in statistics. Introduction to use of R, including data management, simple programming, and statistical graphics in R.

Lecture Information: Tuesdays and Thursdays 3:30pm–4:45pm in Mathematical Sciences 4000A.

Course Staff

Instructor: Edouardo Honig (he/him pronouns)
Email: e.honig+stats20@ucla.edu
Office Hours: Tuesdays and Thursdays 02:30pm–03:30pm, or by appointment
Physical Office Hours Location: Mathematical Sciences 8349 (Statistical Tutoring Center)
Online (Zoom) Office Hours Link: Meeting ID: 920 8841 8779 Passcode: 887444
`https://ucla.zoom.us/j/92088418779?pwd=d2ZTWXFWWGJ5TVhlUzVFcFBTQjN2UT09`

Teaching Assistant (TA): DuoDuo (Danny) Ying
Email: dannyduoying+stats20@gmail.com
Office Hours: TBA

Learning Interns: TBA
Email: TBA

Course Materials

Course Website: `https://bruinlearn.ucla.edu/courses/180415/`

Discussion Forum: `https://campuswire.com/p/G1592CCBB` (Use Class Code 8946 to enroll)

We will be using Campuswire for all class Q&A and discussions. Please use it to ask any class-related questions. You are encouraged to discuss and collaborate with each other and answer each other's questions. The instructor and TA will check Campuswire to answer unresolved questions.

Prerequisites: An introductory statistics class at the level of Stats 10, 12, 13, 15, or equivalent. No experience with programming or R is assumed.

Required Texts: None. All course material will be provided by the instructor.

Required Software:

- Programming Language/Software: R, Version 4.3.0 or later)
  Free to download at `https://cran.r-project.org/`
- Integrated Development Environment: RStudio
  Free to download at `https://posit.co/download/rstudio-desktop/`

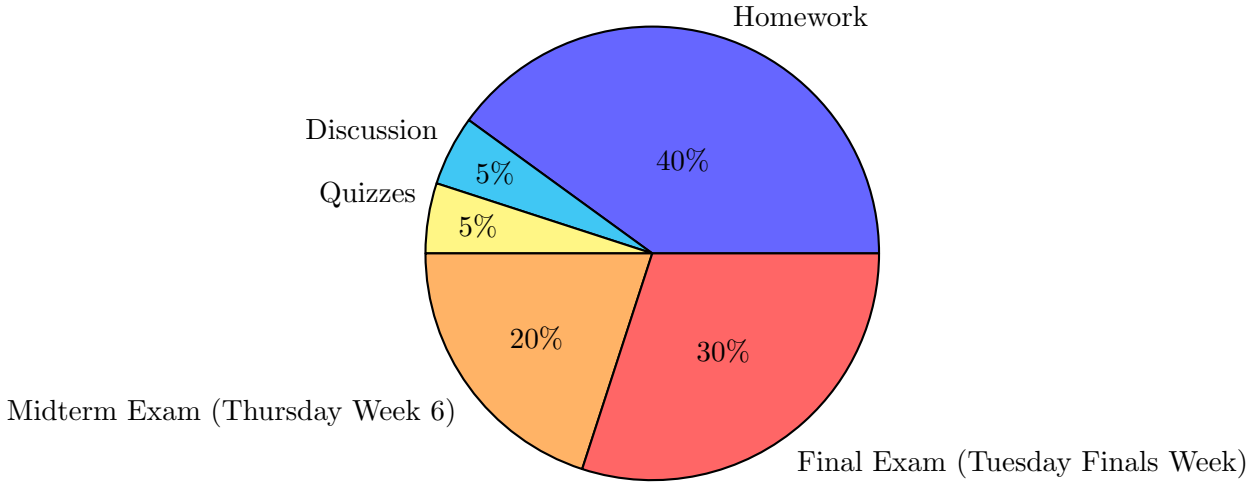
Laptop rentals are available from Campus Library Instructional Computing Commons (CLICC).

Reference (Optional) Textbooks:

- Venables, W. N., Smith, D. M., and the R Core Team, An Introduction to R, Notes on R: A Programming Environment for Data Analysis and Graphics, Version 4.3.1 (2023-06-16).
- R Core Team, R Language Definition, Version 4.3.1 (2023-06-16).
- Braun, W. J. and Murdoch, D.J., A First Course in Statistical Programming with R, 2nd Edition, Cambridge University Press, 2016.
- Grolemund, G., Hands-On Programming with R, O'Reilly, 2014.
- Verzani, J., Using R for Introductory Statistics, 2nd Edition, CRC Press, 2014.

Assignments and Evaluation

Grading Policy: Your grade will be based on the following components:



Homework:
Homework will be assigned roughly every week. The assignments will be posted on Bruin Learn and will be due by 11:59pm University (Pacific) Time on the specified due date.

Discussion:
Discussion section will be held each week. Your TA will determine your section grade, which may be based on an in-class activity, submitted on BruinLearn.

Quizzes:
There will be weekly quizzes related to lecture material posted on Bruin Learn. The quizzes are untimed and open-notes, but they must be completed by the specified deadline.

Exams:

- Midterm: Thursday, February 15, 2024 (in class)
- Final Exam: Tuesday, March 19, 2024 11:30 AM - 2:30 PM, location TBA

Details of the exams will be announced closer to the exam dates.

Communicate with the instructor immediately if you foresee any difficulty in taking the exams at the scheduled time. Not taking the final exam without approval by the instructor will result in an F in the course.

Course Policies

Mask Policy:

While not currently mandated, properly wearing a face mask (covering the nose and mouth) is **strongly recommended** during all class related sessions (lecture, discussion, or office hours). Should any COVID-19 related policies change during the quarter, the course policy will always follow and comply with the latest University and LA County requirements. Non-compliance of any and all COVID-19 health and safety mitigation measures set by the University is a violation of the UCLA Student Conduct Code and may be reported to the Dean of Students.

Copyright Policy:

All course materials (lecture notes, assignments, exam questions, etc.) are intended for personal use only for students who are enrolled in Stats 20 in 2024 Winter. **Do not post, share, or distribute any portion of any course materials to anyone or anywhere, either electronically or physically, without explicit written consent by the instructor, *even after the quarter is over*.** Failure to comply is a violation of academic integrity and copyright infringement against the author(s) of the course materials.

Recording Policy:

To respect and protect the right to privacy of the instructor, the TAs, the LAs, and each student, students are strictly prohibited from any and all photographic, audio, and/or video recording by any means (e.g., phone, camera, screenshot, etc.) in all class related sessions (lecture, discussion, or office hours), whether in-person, pre-recorded, or livestreamed. If lectures are recorded (either by the instructor or through Bruincast), recordings will be solely for use by currently enrolled students and may not be downloaded or shared.

Email Policy:

Any email to the instructor or TA must include your enrolled lecture and discussion section number (e.g., "Stats 20 Disc 1A") in the subject heading (in addition to the subject of the email). Any emails without this information may be missed.

Please allow at least 24 hours (more on weekends and holidays) to expect a reply before sending a follow up email.

All homework assignments must be turned in through the respective submission portals on Bruin Learn. Email submissions will not be accepted: **Do not attach assignments to email**.

Assignment Policies:

No outside functions or syntax are allowed on homework or exams. The course notes and any required readings posted on Bruin Learn are the *only* references necessary and expected for the course. The purpose of many homework and exam questions is to build your problem-solving skills through use of a limited toolkit, and use of Google or any other outside references (including the optional reference textbooks) is **strongly** discouraged.

There will be a 24-hour grace period for late submissions of homework. No credit will be given for assignments submitted after the grace period. Exceptions to the late penalty are considered on a case-by-case basis to accommodate extenuating circumstances.

Submissions must be reasonably presentable, properly indented, well-formatted, and easily readable to the grader. Any submissions that are difficult for the grader to read will receive a penalty for style/readability.

Style for all submitted R code should follow the Tidyverse style guide, which represents best practices for readable code among modern R users: `https://style.tidyverse.org/`. Egregious style issues will be penalized.

Collaboration Policy:

Limited collaboration will be allowed in solving homework problems, but each student must submit independently written solutions that adhere to the university policy on academic integrity. **Searching for, finding, and/or using solutions online or from previous students is considered academically dishonest.** The full collaboration policy and an academic integrity agreement will be posted on Bruin Learn.

Regrade Policy:

Requests for regrades on homework should be sent to your TA, who will liaise with the grader in addressing the grading concern. Homework submissions will be regraded in their entirety, and any grade adjustments (whether an increase or decrease) will be considered final.

Course Grade Changes:

It is the student's responsibility to check grades on Bruin Learn in a timely manner so that any grade issues (e.g., missing or incorrect grades) are resolved well before the quarter is over. All grades are considered final 24 hours after the final exam and cannot be appealed.

After course grades have been submitted to the Registrar, grades are final. Grade changes will only be considered if there has been a clerical or procedural mistake. Students have one quarter to make requests for a grade change. Graded exams and other materials will be kept for one quarter. After one quarter, course grade changes will not be made.

University and Departmental Policies

Academic Integrity: As a student and member of the University community, you are here to get an education and are, therefore, expected to demonstrate integrity in your academic endeavors. All students must uphold University of California Standards of Student Conduct as administered by the Office of the Dean of Students. Students are subject to disciplinary action for several types of misconduct, including but not limited to: cheating, multiple submissions, plagiarism, prohibited collaboration, facilitating academic dishonesty, or knowingly furnishing false information. For more information about academic integrity, please go to `http://www.deanofstudents.ucla.edu/`.

In addition, each student is the sole owner of their own code and work and must NOT:

- Submit work that is not original.
- Publish code or solutions online.
- Post the course questions on forums other than the designated course discussion forum. This means students cannot post questions on places like Stack Overflow, Chegg, ChatGPT, or other similar places.
- Submit someone else's work, or a modification of that work, with or without that person's knowledge.
- Allow someone else to submit their work, or a modification of their work.
- Contract course work out to others.
- Plan or execute with another student some form of cheating during an exam.
- Make use of unauthorized material during an exam.

Zero Tolerance Policy: Any and all issues of potential academic dishonesty will be reported to the Dean of Students without warning.

Accessible Education: If you have a disability that will require academic accommodation, please contact the UCLA Center for Accessible Education (CAE). Please contact the CAE as soon as possible to allow for sufficient time to coordinate accommodations.

Title IX: Title IX prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, you can receive confidential support and advocacy at the CARE Advocacy Office for Sexual and Gender-Based Violence, 1st Floor Wooden Center West, CAREadvocate@caps.ucla.edu, (310) 206-2465. In addition, Counseling and Psychological Services (CAPS) provides confidential counseling to all students and can be reached 24/7 at (310) 825-0768. You can also report sexual violence or sexual harassment directly to the University's Title IX Coordinator, 2241 Murphy Hall, titleix@conet.ucla.edu, (310) 206-3417. Reports to law enforcement can be made to UCPD at (310) 825-1491. Faculty and TAs are required under the UC Policy on Sexual Violence and Sexual Harassment to inform the Title IX Coordinator should they become aware that you or any other student has experienced sexual violence or sexual harassment.

Miscellaneous Advice (from Professor Michael Tsiang)

Focus on the learning, not on the grade. You are not a student at UCLA simply to get letters on a transcript. The point of this course is to help you become solid on the foundations so that you are not floundering on the fundamentals in later courses or applications when there are higher stakes and larger consequences. My main hope for you is eventually to become a strong, self-sufficient programmer/student. I know that that often takes more than one short quarter to happen. What is ultimately more important is to have a willingness to learn, a growth mindset, and integrity in everything you do.

No one is born knowing R, statistics, or any other thing that you may feel "comes naturally" to some people and not others. It takes hard work. It takes practice (sometimes a LOT of it). It takes failing and trying again. It takes asking others for advice. Being comfortable with disappointment and knowing how to deal and respond to it is part of the growth process. It is hard, it often sucks, but it is ultimately necessary to become the best you can be.

Ask for help. Post to the discussion forum and attend office hours if you have questions or concerns. The teaching team holds many office hours spread out over the week to be available and accessible to you. Please let the instructor know if there are time conflicts with these.

No grade is more important than your well-being or your integrity. No grade in any class, including this one, is more important than your physical well-being, your mental well-being, and your integrity. Take time to rest, eat, exercise, go for a walk, connect with friends, speak to a counselor, or whatever it takes to take care of yourself. It might not feel like it, but you are not alone. Be mindful of others' struggles as well.

`https://standtogether.ucla.edu/`

"We need to remember what's important in life: friends, waffles, work. Or waffles, friends, work. Doesn't matter, but work is third." – Leslie Knope (from Parks and Recreation)

Tentative Course Schedule

Week 1	Tuesday	Jan 09	Chapter 1: Getting Started
	Thursday	Jan 11	Chapter 2: Vectors
Week 2	Tuesday	Jan 16	Chapter 2: Vectors
	Thursday	Jan 18	Chapter 3: Logical Expressions
Week 3	Tuesday	Jan 23	Chapter 4: Flow Control Statements
	Thursday	Jan 25	Chapter 4: Flow Control Statements
Week 4	Tuesday	Jan 30	Chapter 5: Matrices
	Thursday	Feb 01	Chapter 5: Matrices
Week 5	Tuesday	Feb 06	Chapter 6: Factors
	Thursday	Feb 08	Chapter 7: Data Frames and Lists
Week 6	Tuesday	Feb 13	Chapter 7: Data Frames and Lists
	Thursday	**Feb 15**	**Midterm Exam**
Week 7	Tuesday	Feb 20	Chapter 8: Data Input and Output
	Thursday	Feb 22	Chapter 9: Basic String Manipulation
Week 8	Tuesday	Feb 27	Chapter 9: Basic String Manipulation
	Thursday	Feb 29	Chapter 10: Basic Graphics
Week 9	Tuesday	Mar 05	Chapter 10: Basic Graphics
	Thursday	Mar 07	Chapter 11: Simulation
Week 10	Tuesday	Mar 12	Chapter 11: Simulation
	Thursday	Mar 14	Review
Finals Week	**Tuesday**	**Mar 19**	**Final Exam**: **11:30am–02:30pm**