



STS 115: Data sense and exploration

Winter 2021 Course Syllabus

Lecture: Tuesdays, 3:10 p.m. - 4:30 p.m. (Zoom)

Lab (optional): Thursdays, , 3:10 PM - 4:30 PM (Zoom)

Instructor: Alejandro Ponce de León, poncedeleon@ucdavis.edu

Office hours: Tuesdays, 1:00–3:00 p.m. (appointments, [here](#))

Presentation

This course introduces students to data science analysis, through practical engagement and critical reflection. Throughout the quarter, we will study different strategies for finding, analyzing, and presenting data in an accessible, reflexive, and compelling manner. We will also explore some of the cultural, political, and ethical challenges in contemporary data production and interpretation.

A key feature of our contemporary life is the abundance —and pivotal role— of standardized data sets. Notions such as 'data-mining' or 'collection of data' give the impression that data is ready and available to whoever want to look at it. However, as we will study in this class, before it can be 'visualized,' data needs to be produced, processed, ordered and interpreted. In this regard, data is never raw, obvious, or neutral. On the contrary, it is the outcome of complex social interactions that enable the translation of everyday experiences into data forms.

By bringing together tools from the fields of sociology, anthropology, and science and technology studies, this course will teach you how to critically engage in the processes of data production and interpretation. This course will also help you build a set of skills to conduct your own data analysis and recollection. Specifically, we will learn about the social production of data, the limitations of the sampling mechanism, and how to think about inferences while working with datasets.

The course will introduce elementary aspects of the R computing environment to explain some of its fundamental concepts. Previous expertise with R or computational statistical analysis is not a prerequisite. We will learn more about the R environment in our weekly lab meetings.

We will meet virtually on Tuesdays and Thursdays from 3:10 to 4:30 p.m. All Zoom meetings have been scheduled on Canvas.

Assignments & Assessments

The course will consist of a combination of lectures, lab activities and reports, reading quizzes, in-class discussions, and oral presentations. I will post detailed guidelines per assignment on Canvas. This course meets the Oral Skills Literacy requirement and, thus, several class assignments will depend on group discussions and in-class presentations. Please be aware that we may be discussing topics that may be delicate. At times, the content of these conversations may surprise or provoke you. For this reason, it is encouraged that we think together about ideas that move us in different ways. I invite each of you to debate politely and intelligently.

Grading criteria

<i>Lab reports (5pts. each)</i>	<i>40 pts</i>
<i>Research report</i>	<i>10 pts</i>
<i>Reading quizzes (2 pts. each)</i>	<i>16 pts</i>
<i>TED talk annotation</i>	<i>10 pts</i>
<i>Final presentation</i>	<i>24 pts</i>

For a total of 100 points (100% of your final grade)

Lab reports (40pts)

The labs in this course will walk you through technical skills in finding, formatting, analyzing, and presenting data in R. You may work in groups for these assignments. By the end of the quarter, you and/or your group will have produced a working data dashboard for exploring your datasets, as well as a series of reflections about your findings. Each student, however, should submit individual lab reports.

Labs will be posted to GitHub weekly. Below you will find a detailed schedule. I will go over this assignment, its requirements, how to download the labs, and how to submit the reports on Thursday, January 7th. **You do not need to work on the lab during the designated lab time.** Every Thursday, however, I will be available via Zoom to address any questions or concerns regarding the lab.

Research report (10pts)

Once in the quarter, each student should prepare a short (5 min.) class presentation discussing their (or their group's) weekly findings and explorations in relation to the session's reading. On Thursday, January 7th, I will pass along a list where you will select the group you will be working with and the session when you will be presenting.

Reading quizzes (16pts)

Each week we will be doing a set of readings, which will guide our class conversation (detailed reading schedule below). To help you stay on

top of the reading, I will assign short multiple-choice quizzes to be completed before our Tuesday meetings. Reading quizzes will be posted ahead of time, so you may look for the answers as you read. There will be eight quizzes in total. **Late quizzes will only be accepted with proper documentation.**

TED Talk Annotation (10pts)

You will select a TED Talk to view that is related to the topic of the data you are analyzing, and you will annotate the talk for the presenter's style (500 words min.). This assignment aims to encourage you to look for effective modes of communication in oral presentations. On Tuesday, January 19, I will post on Canvas detailed guidelines. You should submit this assignment no later than Thursday, March 4th.

Final presentation (24pts)

This course does not have a final exam but does have a final presentation. No later than Tuesday, March 9th, you (or your group) will submit a video recording (or set of video recordings) in which each member succinctly presents (5- minutes) one argument or insight that you gathered from your data research. A short Q&A session will follow each group presentation. Detailed guidelines for this assignment will be posted on Canvas on Tuesday, February 16th.

Late assignments

Each assignment should be submitted before its stated deadline. Please reach out to me via email if there are pressing reasons why you need to turn in an assignment late. Otherwise, late assignments will receive a 10% point deduction immediately. After this, an additional 10% will be deducted for each additional day late. No assignment will be accepted more than one week (7 days) after the stated deadline (including weekend days). Reading quizzes will not be accepted after their stated deadline without proper documentation.

Course material

In this course, we will be reading a selection of articles and book chapters. All the readings are available on Canvas, under the folder named "readings," and organized per week. You are expected to do the assigned readings before our class meetings. Below, you will find a detailed schedule. If you have any problem accessing the material, please let me know as soon as possible.

Keep in mind that there is **no textbook assigned for this class.**

There are, however, two suggested books that are available to you at no cost via the UC Davis library:

1. Wickham, Hadley, and Garrett Grolemund. R for data science: import, tidy, transform, visualize, and model data. O'Reilly, 2016.
2. Herzog, David. Data literacy: a user's guide. SAGE, 2015.

Class attendance and participation

Attendance and participation will not count towards your final grade. However, learning will be a collective effort, so you are encouraged to attend lectures and engage with the class content. On average, plan to make one or two relevant comments in every session, either in the text-chat window or verbally in the video stream.

Email policy

We will communicate via Canvas. Please visit the course site every week. If you have any questions, please send me a message, and I will respond to you as soon as possible. However, allow me two business days to respond.

GE Requirements

This course meets the Oral Skills Literacy requirement. The purpose of the Oral Skills Literacy requirement is to strengthen effective communication skills by strengthening students' ability to use critical thinking skills to present ideas or concepts verbally. To meet this GE's requirements, you will be expected to report out from group discussions at least once in the quarter and submit your final presentation as a video.

Accommodations

Let me know via email if you need any accommodations based on a documented disability. I rely on the Student Disability Center to make accommodations, so please contact them as well. For more information, visit their website: <https://sdc.ucdavis.edu/>

Plagiarism and academic integrity

Plagiarism is the presentation of someone else's work (in any media) as one's own. It can occur intentionally or unintentionally. Examples of plagiarism include the lack of appropriate citations when quoting someone's work, paraphrased text that lacks a correct reference to the original source, and work copied from a peer. See this link for more information: sdc.ucdavis.edu/process.html. I will report all cases of suspected plagiarism to the Office of Student Judicial Affairs, in accordance with the Code of Academic Conduct: <http://sja.ucdavis.edu/files/cac.pdf>

Course Schedule

Tuesday, January 5: Course presentation

No readings

Thursday, January 7: An R primer

[Lab 1 posted]

[List for groups and discussion reports will be circulated]

Tuesday, January 12: Data worlds

>Pentland, Alex. "The Data-Driven Society." *Scientific American*, vol. 309, Oct. 2013, pp. 78–83. doi:[10.1038/scientificamerican1013-78](https://doi.org/10.1038/scientificamerican1013-78).

>Bates, Jo, et al. "Data Journeys: Capturing the Socio-Material Constitution of Data Objects and Flows." *Big Data & Society*, vol. 3, no. 2, SAGE Publications Ltd, Dec. 2016, p. 2053951716654502. *SAGE Journals*, doi:[10.1177/2053951716654502](https://doi.org/10.1177/2053951716654502).

[Reading quiz 1, due 3:09 p.m.]

Thursday, January 14: Finding data

[Lab 1, due 11:59 a.m.]

[Lab 2 posted to GitHub]

Tuesday, January 19: (De)contextualization

>Almklov, Petter G. "Standardized Data and Singular Situations." *Social Studies of Science*, vol. 38, no. 6, SAGE Publications Ltd, Dec. 2008, pp. 873–97. *SAGE Journals*, doi:[10.1177/0306312708098606](https://doi.org/10.1177/0306312708098606).

[Reading quiz 2, due 3:09 p.m.]

[TED Talk Annotation guidelines will be posted on Canvas]

Thursday, January 21: Reading data

[Lab 2, due 11:59 a.m.]

[Lab 3 posted to GitHub]

Tuesday, January 26: Standpoints and translations

> Geoffrey C. Bowker, Susan Leigh Star. "What a difference a name makes—the classification of nursing work." *Sorting Things Out: Classification and Its Consequences* (1999): 229-254.

> D'Ignazio, Catherine, and Lauren F. Klein. "Unicorns, Janitors, Ninjas, Wizards, and Rock Stars." *Data Feminism*, MIT Press, 2020, pp. 125–48.

[Reading quiz 3, due 3:09 p.m.]

Thursday, January 28: Cleaning data

[Lab 3, due 11:59 a.m.]

[Lab 4 posted to GitHub]

Tuesday, February 2: Relations and analysis

> Anderson, Chris. "The End of Theory: The Data Deluge Makes the Scientific Method Obsolete." *Wired*, 2008. www.wired.com, <https://www.wired.com/2008/06/pb-theory/>.

> Richardson, Rashida, et al. "Dirty Data, Bad Predictions: How Civil Rights Violations Impact Police Data, Predictive Policing Systems, and Justice." *New York University Law Review Online*, 94, 2019, p. 15-55.

[Reading quiz 4, due 3:09 p.m.]

Thursday, February 4: Variation and co-variation

[Lab 4, due 11:59 a.m.]

[Lab 5 posted to GitHub]

Tuesday, February 9: Formulas and calculations

> Ballesterio, Andrea. *Chapters 1 & 2*. In "A Future History of Water." Duke University Press Books, 2019. Pp. 36 - 108

[Reading quiz 5, due 3:09 p.m.]

Thursday, February 11: Quantitative insights

[Lab 5 due 11:59 a.m.]

[Lab 6 posted to GitHub]

Tuesday, February 16: Contested data

>Edwards, Paul. "Knowledge Infrastructures under Siege: Climate Data as Memory, Truce, and Target." *Data Politics: Worlds, Subjects, Rights*, 2019.

[Reading quiz 6, due to 3:09 p.m.]

[Final presentation guidelines posted to Canvas]

Thursday, February 18: (Re)contextualization

[Lab 6, due 11:59 a.m.]

[Lab 7 posted to GitHub]

Tuesday, February 23: The politics of insights

>Kitchin, Rob, et al. "Knowing and Governing Cities through Urban Indicators, City Benchmarking and Real-Time Dashboards." *Regional Studies, Regional Science*, vol. 2, no. 1, Routledge, Jan. 2015, pp. 6–28. *Taylor and Francis*, doi:[10.1080/21681376.2014.983149](https://doi.org/10.1080/21681376.2014.983149).

>Holden, Meg, and Sara Moreno Pires. "The Minority Report: Social Hope in next Generation Indicators Work. Commentary on Rob Kitchin et al.'s 'Knowing and Governing Cities through Urban Indicators, City Benchmarking, and Real-Time Dashboards.'" *Regional Studies, Regional Science*, vol. 2, no. 1, Routledge, Jan. 2015, pp. 33–38. *Taylor and Francis*, doi:[10.1080/21681376.2014.987541](https://doi.org/10.1080/21681376.2014.987541).

[Reading quiz 7, due 3:09 p.m.]

Thursday, February 25: Summarizing insights and data gaps

[Lab 7, due 11:59 a.m.]

[Lab 8 posted to GitHub]

Tuesday, March 2: Data activism

>Milan, Stefania, and Lonneke Van der Velden. "The alternative epistemologies of data activism." *Digital Culture & Society* 2.2 (2016): 57-74.

Fortun, Kim, et al. "Pushback: Critical data designers and pollution politics." *Big Data & Society* 3.2 (2016)

[Reading quiz 8, due 3:09 p.m.]

Thursday, March 4: Designing data presentations

[Lab 8, due 11:59 p.m.]

[TED Talk Annotation, due 5:00 p.m.]

Tuesday, March 9: Students' presentations

No reading.

[Students' presentations, due 11:59 a.m.]

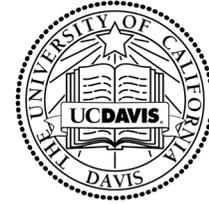
Thursday, March 11: Students' presentations (II)

No lab.

The University of California, Davis

CODE OF ACADEMIC CONDUCT

Honesty, Fairness, Integrity



This Code of Academic Conduct exists to support high standards of behavior and to ensure fair evaluation of student learning. Students who violate the Code of Academic Conduct are subject to disciplinary sanctions that include censure, probation, suspension, deferred separation or dismissal from the University of California. Unless specifically authorized by the instructor in writing, misconduct includes, but is not limited to the following:

- Academic misconduct on exams or other coursework
 - Copying or attempting to copy from another student, allowing another student to copy, or collaborating with another student on an exam.
 - Displaying or using any unauthorized material such as notes, cheat-sheets, or electronic devices
 - Looking at another student's exam
 - Not following an instructor's directions regarding an exam.
 - Talking, texting or communicating during an exam
 - Altering assignments or exams for re-grading purposes
 - Bringing pre-written answers to an exam
 - Having another person take an exam for you, or taking an exam for another student
 - Theft of academic work
 - Unexcused exit and re-entry during an exam period

- Plagiarism
 - Taking credit for any work created by another person. Work includes, but is not limited to books, articles, experimental methodology or results, compositions, images, lectures, computer programs, internet postings
 - Copying any work belonging to another person without indicating that the information is copied and properly citing the source of the work
 - Using another person's presentation of ideas without putting such work in your own words or form and giving proper citation
 - Creating false citations that do not correspond to the information you have used
 - Plagiarizing one's own work

- Unauthorized collaboration
 - Working together on graded coursework without permission of the instructor
 - Working with another student beyond the limits set by the instructor
 - Providing or obtaining unauthorized assistance on graded coursework

- Misuse of an instructor's course materials or the materials of others:
 - Posting or sharing any course materials of an instructor without the explicit written permission of that instructor
 - Purchasing or copying assignments or solutions, to complete any portion of graded work, without the instructor's permission
 - Unauthorized use of another student's work

- Lying or fraud:
 - Giving false excuses to obtain exceptions for deadlines, to postpone an exam, or for other reasons
 - Forging signatures or submitting documents containing false information
 - Making false statements regarding attendance at class sessions, requests for late drops, incomplete grades, or other reasons

- Intimidation or disruption:
 - Pressuring an instructor or teaching assistant to regrade work, change a final grade, or obtain an exception such as changing the date of an exam, extending a deadline, or granting an incomplete grade
 - Refusing to leave an office when directed to do so
 - Physically or verbally intimidating or threatening an instructor, teaching assistant or staff person, including yelling at them, invading personal space, or engaging in any form of harassment
 - Repeatedly contacting or following an instructor, teaching assistant, or staff person when directed not to do so
 - Misusing a classroom electronic forum by posting material unrelated to the course
 - Interfering with an instructor's or teaching assistant's ability to teach a class, or interfering with other students' participation in a class by interrupting, physically causing a disruption, or excessive talking

Upholding the UC Davis Code of Academic Conduct

Students, faculty, and University administration all have a role in maintaining an honest and secure learning environment at UC Davis.

- The success of our Code of Academic Conduct depends largely on the degree that it is willingly supported by students. Students:
 - Are responsible to know what constitutes cheating. Ignorance is not an excuse.
 - Are required to do their own work unless otherwise allowed by the instructor.
 - Are encouraged to help prevent cheating by reminding others about this Code and hold each other accountable by reporting any form of suspected cheating to the University.
 - Shall respect the copyright privileges of works produced by faculty, the University, and other copyright holders.
 - Shall not threaten, intimidate or pressure instructors or teaching assistants, or interfere with grading any coursework.
 - Shall not disrupt classes or interfere with the teaching or learning environment.

- Faculty members and instructors are responsible for teaching courses and evaluating student work, and are governed by University of California and UC Davis policies and regulations. Regulation 550 of the Davis Division of the Academic Senate addresses academic misconduct. Faculty and instructors:
 - Will provide students with a course outline containing information about the content of the course, amount and kind of work expected, examination and grading procedures and notice of the Code of Academic Conduct.
 - Should monitor examinations to help prevent academic misconduct.
 - Shall report all suspected cases of cheating and other misconduct to the Office of Student Support and Judicial Affairs (<http://ossja.ucdavis.edu/>).

- The University has delegated authority and responsibility to the Office of Student Support and Judicial Affairs (OSSJA) for the adjudication and resolution of academic misconduct cases. OSSJA maintains records of academic misconduct. The University:
 - Shall educate faculty and students about the Code of Academic Conduct.
 - Shall provide physical settings such as classrooms and labs for examinations that minimize opportunities for academic misconduct.
 - Shall assist and train faculty and teaching assistants about how to prevent and address academic misconduct.

- Submitting Reports and Judicial Procedures
 - The Code of Academic Conduct governs academic conduct at UC Davis.
 - Faculty have sole authority, as granted by the Academic Senate, to evaluate a student's academic performance and assign grades. 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.
 - A faculty/student panel, convened by OSSJA, shall conduct formal hearings to adjudicate contested cases of academic misconduct, unless the right to a formal hearing has been withdrawn. The right to a formal hearing may be withdrawn because of a prior finding of misconduct.
 - Instructors and teaching assistants may direct a student to leave a class immediately if the student's behavior is disruptive.
 - Instructors, teaching assistants and staff persons should contact police (752-1230 or 911) if they feel physically threatened.

Avoiding PLAGIARISM

Mastering the Art of Scholarship

In writing, we draw upon others' words and ideas and the intellectual heritage underlying human progress. Scholarship entails researching, understanding, and building upon the work of others, but also requires that proper credit be given for any "borrowed" material. Under our *Code of Academic Conduct*, UC Davis students are responsible for ethical scholarship, and for knowing what plagiarism is and how to avoid it.

What is plagiarism?

"**Plagiarism**" means using another's work without giving credit. If you use others' words, you must put them in quotation marks and cite your source. You must also include citations when using others' ideas, even if you have paraphrased those ideas in your own words.

"**Work**" includes the words and ideas of others, as well as art, graphics, computer programs, music, and other creative expression. The work may consist of writing, charts, data, graphs, pictures, diagrams, websites, movies, TV broadcasts, or other communication media.

The term "**source**" includes published works -- books, magazines, newspapers, textbooks, websites, movies, photos, paintings, plays -- and unpublished sources (e.g., materials from a research service, blogs, class handouts, lectures, or notes, speeches, other students' papers). **Using words, ideas, computer code, or any work without giving proper credit is plagiarism. Any time you use information from a source, of any kind, you must cite it.**

Why be concerned about plagiarism?

- **If you plagiarize, you are cheating yourself.** You don't learn to write out your thoughts in your own words, and you won't receive specific feedback from your instructor geared to your individual needs and skills.
- **Plagiarism is dishonest and/or misleading,** because it misrepresents the work of another as your own.
- **Plagiarism violates the *Code of Academic Conduct*** and can lead to Suspension or Dismissal.
- **Plagiarism devalues others' original work.** Using and submitting a professional's work as your own is taking an unfair advantage over students who do their own work.
- **It is wrong to take or use property** (an author's work) without giving the owner the value or credit due. Further, copyright violations can result in damages, fines, or worse.
- **The reputation of UC Davis affects the value of your degree;** student dishonesty hurts UCD's standing and can diminish the worth of your diploma.

How to Cite Sources:

In-Text Citations identify the source in the text, putting the author's last name and publication year in parenthesis and giving the page number where the cited information appears. The author's name links the reader to a list at the end of the paper giving full publishing information.

Footnotes and endnotes use raised numbers at the end of an idea or quoted words to link the reader to the source which is given either at the bottom of the page (footnote) or at the end of the paper (endnote).

For all three methods, you must include the source in a reference list at the end of the paper, fully identifying each source by author's name, title, publisher's name, year of publication, and page numbers. Citations to electronic resources such as websites should include the exact URL, the date last revised, and any available information about the writer, publisher, and/or creator of the site

Resources on citation can be found from the UC Davis University Library at: <http://guides.lib.ucdavis.edu/citations>

Guidelines for Avoiding Plagiarism:

- When using sources, **take notes from the source material** and include the necessary information about the source that will later be used for your reference list and your citations.
- When **writing your paper drafts, include citations**. Attempting to add citations after you've written your paper will likely lead to missing or wrong citations to source material.
- **Use your own words and ideas**. Practice is essential to learning. Each time you choose your words, order your thoughts, and convey your ideas, you can improve your writing.
- **Give credit for copied, adapted, or paraphrased material**. If you copy and use another's exact words, you must use quotation marks and and cite the source. If you adapt a chart or paraphrase a sentence, you must still cite your source. Paraphrasing is restating the author's ideas, information, and meaning in your own words.
- **Avoid using others work with minor "cosmetic" changes**. E.g. using "less" for "fewer," reversing the order of a sentence, or changing terms in a computer code. If the work is essentially the same as your source, give credit.
- **There are no "freebies."** Always cite words, information and ideas that you use if they are new to you (learned in your research). No matter where you find it – even if on the Internet or in a course reader – you must cite it!
- **Don't assume information is "common knowledge."** It is safer to cite than not.
- **Know what plagiarism is:** Unintentional plagiarism may result from not knowing how to cite sources properly or sloppy research and note-taking but it still violates the UC Davis *Code of Academic Conduct*.

Examples:

PARAPHRASE VS. PLAGIARISM

Original Source: *'[A totalitarian] society ... can never permit either the truthful recording of facts, or the emotional sincerity, that literary creation demands. ... Totalitarianism demands ... the continuous alteration of the past, and in the long run ... a disbelief in the very existence of objective truth.'*³

Student Version A – Plagiarism ☹

A totalitarian society can never permit the truthful recording of facts; it demands the continuous alteration of the past, and a disbelief in the very existence of objective truth.

The student has combined copied pieces of the author's language, without quotation marks or citations.

Student Version B -- Improper paraphrase, also plagiarism ☹

A totalitarian society can't be open-minded or allow the truthful recording of facts, but instead demands the constant changing of the past and a distrust of the very existence of objective truth (Orwell).

The student has woven together sentences and switched a few words ("open-minded" for "tolerant," "allow" for "permit") has left out some words, and has given an incomplete and inaccurate citation.

Student Version C -- Appropriate paraphrase, *not* plagiarism

Orwell believed that totalitarian societies must suppress literature and free expression because they cannot survive the truth, and thus they claim it does not exist (Bowker 336-337).

This student has paraphrased using her own words, accurately reflecting and citing the author's ideas.

Student Version D -- Quotation with cite, *not* plagiarism

In his biography of George Orwell, Gordon Bowker discusses the themes of 1984, quoting a 1946 essay by Orwell: "Totalitarianism demands ... the continuous alteration of the past, and in the long run ... a disbelief in the very existence of objective truth" (337).

The student introduces the source. Verbatim words are in quotation marks, omitted words are marked by ellipses, and both the book used and the original source of the quote are cited.

³Bowker p. 337, quoting Orwell, G., "The Prevention of Literature," *Polemic*, No. 2, January 1946

Getting Help

Read the syllabus and assignment; ask your instructor how to cite sources; and carefully check class rules on citation format. Use resources such as the UC Davis Student Academic Success Center at 530-752-2013 <http://sasc.ucdavis.edu> or UC Davis Library Instruction Services <http://www.lib.ucdavis.edu/dept/instruc>. For questions contact Student Support and Judicial Affairs at 530-752-1128 or visit <http://ossja.ucdavis.edu>.