

CSPB 3022 - Craven - Introduction to Data Science Algorithms

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Syllabus

INSTRUCTOR INFORMATION

Instructor:	Cailyn Craven (she/her)
Contact:	Piazza private message
Email:	cailyn.craven@colorado.edu
Office Hours (via Zoom):	Thursday, 7 pm - 8 pm. Mountain Time Friday, 11 am - 12 pm Mountain Time

- Zoom and Piazza links will be available on the first day of classes

IMPORTANT DATES (All times are in Mountain Time)

- **Weekly Piazza Posts:**
 - Posts are due by 11:59 pm on the Tuesday of the week following their assignment.
- **Quizzes:**
 - Typically due by 11:59 pm on the Tuesday of the week following their assignment.
- **Assignments:**
 - Generally due by 11:59 pm on the Tuesday of the week following their assignment.

Note: Some assignments may have extended deadlines. Always refer to the course schedule for specific due dates.

- **Exam 1:** Friday, Feb. 23rd
- **Exam 2:** Friday, March 22nd
- **Final Project Part 1,** due: April 26th
- **Final Project, submission window** April 29th - May 3rd

Spring 2024 Course Format

As part of our continuous effort to enhance our offerings, the format for CSPB 3022 this semester will differ from our standard CSPB courses. The CSPB 3022 course is currently going through an update process. Specifically, we'll be aligning our content with the CU on-campus CSCI 3022 course. For this semester of CSPB 3022, the videos are from on-campus lecture recordings during Fall 2023.

Student Work and Examples

I will sometimes post excellent examples of student work anonymously in Piazza..

The Applied CS Department may also share samples of student work from homework, exams, or Piazza anonymously with prospective CS students and others in educational discussion and/or media. Please contact your instructor if you do not wish to have samples of coursework shared.

Course Information

Course pre-requisites: CSPB 1300 / CSCI 1300

Course description and purpose: Introduces students to the tools methods and theory behind extracting insights from data. Covers algorithms of cleaning and munging data, probability theory and common distributions, statistical simulation, drawing inferences from data, and basic statistical

modeling.

Learning Goals

The learning goals are as follows:

- Goal 1. Recognize the importance of data collection, identify limitations in data collection methods and other sources of statistical bias, and determine their implications and how they affect the scope of inference.
- Goal 2. Use statistical software to summarize data numerically and visually, and to perform data analysis.
- Goal 3. Have a conceptual understanding of the unified nature of statistical inference.
- Goal 4. Apply estimation and testing methods to analyze single variables or the relationship between two variables in order to understand natural phenomena and make data-based decisions.
- Goal 5. Model numerical response variables using a single explanatory variable or multiple explanatory variables in order to investigate relationships between variables.
- Goal 6. Interpret results correctly, effectively, and in context without relying on statistical jargon.
- Goal 7. Critique data-based claims and evaluate data-based decisions.

Assignments

Assignments include quizzes, homework, exams, and a final project. Grades will be available through the Moodle grade book. Grades contained in that grade book are considered authoritative.

Quizzes (15% of grade)

Weekly quizzes ask you to reflect on your understanding of the material.

Homework (35% of grade)

Homework assignments are designed to help students develop an in-depth understanding of both the theoretical and practical aspects of ideas presented in the lecture videos.

- Submit assignments to Gradescope by the posted due date. Each assignment has a separate autograded and manually graded portion to submit. Make sure to run all cells so that output and visualizations are visible for your submission.
- Assignments (and the project) have both visible and hidden autograder tests. The visible tests are mainly checks that you are on the right track. For example, a visible test case might verify that the answer you entered is a number, as expected, and not a word. The hidden tests generally check for correctness and are invisible while doing the assignment.

You may discuss problems with your classmates, **but all work must be your own**. See the **Collaboration Policy** below for more details.

Exams (30% of Grade)

There are two exams- Exam 1 and Exam 2 that will be monitored by Proctorio.

Exam 1: Friday, Feb. 23rd

Exam 2: Friday, March 22nd

Final Project (15% of Grade)

It can be helpful to think of the Project as a 2-week assignment (with a weekly checkpoint) that synthesizes multiple topics.

- **Final Project Part 1:** due April 26th
- **Final Project Part 2: submission window** April 29th - May 3rd

Piazza Participation (5% of Grade)

Students are expected to engage in weekly discussions via the Piazza discussion forum. Here are the guidelines for full credit:

- **Minimum Requirement:** At least **two** substantive responses are required each week.
- Posts are due by 11:59 pm on the Tuesday of the week following their assignment.
- **Grading Period:** There are no posting requirements during Spring break or the last week of the course.

Grading

The final grades for this class follow the standard percentage breakdown for the College of Engineering:

Percentage (%) Grade

93-100	A
90-93	A-
87-90	B+
83-87	B
80-83	B-
77-80	C+
73-77	C
70-73	C-
67-70	D+
63-67	D
60-63	D-
0-59.9	F

Communication

Piazza

The Piazza discussion platform is where most of our communication will take place. All homework, content, and course related questions should be posted there. More often than not, other students have the same question as you and having those discussions in a public forum accessible to the rest of the class benefits everyone. We also highly encourage and expect all students to actively participate on Piazza. This can include posting a new question, answering another student's question, or just participating in an ongoing discussion. We have found that this not only helps students think more critically about certain topics, but also fosters a sense of community in this online learning environment.

The instructor will also use Piazza on a regular basis to notify you of important weekly reminders, updates to the schedule, and other important information. Although you are free to adjust your Piazza email notifications, you are still ultimately responsible for being informed on the information the instructor posts. Therefore, you are expected to check in on Piazza on a regular basis if you decide to turn email notifications off. Piazza does allow you to selectively follow/unfollow threads so we suggest that you keep notifications turned on and simply unfollow the specific threads that you are not interested in receiving notifications for.

Since this is a computer science program, often times you may want to post about code that isn't working. However, please be aware that posting of long bits of code that may provide (partial or full) solutions to homework or quiz problems is strictly prohibited and is subject to deletion. You may include a few lines of code where you believe your problem to lie, error messages you are encountering, or pseudocode if you need help with your algorithm or general approach to a problem. But do not post your entire code solution and ask for others to debug your entire code. Instead, post what you believe the problem to be, what you've tried, and what specific question you have about the problem. Posting generic code for general concept related questions is perfectly acceptable as long as it is not directly giving answers or hints to homework or quiz problems.

Office Hours

Office hours will be held at the date and times listed at the top of the syllabus via Zoom. Attending office hours is completely optional. There is no formal structure to the meetings. The instructor will typically go over any questions the students may have about the homework or material. It's also a great time for answering questions that can't be handled via Piazza or for discussions that can benefit from the face-to-face interaction. Please note that multiple students may be in attendance during the meetings so this is not the place for private matters.

Email

For any personal or sensitive questions or comments, you may email the instructor at the email address listed at the top of the syllabus. Your colorado.edu email is the official university method of communication so please be sure to check it often for any important announcements from the university or our program. Please note that the instructor email is not to be used for questions about the homework, material, or content of the course. Those questions should always be directed to Piazza.

Availability

Instructors are available Monday through Friday during normal business hours and may take up to 24 hours to respond to messages on Piazza or email. Instructors are generally not expected to be available on nights, weekends, and holidays.

PROGRAM POLICIES

Collaboration Policy

We welcome collaboration! Sharing insights, asking questions, learning by doing, and learning by helping others are essential skills in learning computer science.

Collaboration is discussing ideas of the course with others, sharing insights and extra resources, working through similar questions to an assignment, sharing resources, and helping others. The Piazza forum in your class is an ideal place to share ideas, lead a discussion or be the hero that asks the “dumb question” everyone else is afraid to ask. And Piazza is often a source of content for instructors to include in letters of recommendation. Your leadership, courage, and determination will not go unnoticed.

Collaboration is not:

- “Having a partner.” In particular, Group Projects, or projects that specify “working with a partner” will have individual guidelines.
- One student solving problems 1-4, and another solving 6-10.
- An identical group solution submitted by multiple students.

Unless specified in the assignment, all submitted coursework is individual.

In general:

- You must document resources and collaboration on any assignment. This should be in the form of comments at the start of code and/or within solution notes.
- Cite Your Sources: If you collaborated with someone on an assignment, or if your submission includes quotes from a book, a paper, or a website, you must clearly acknowledge the source.
- Plagiarism is forbidden. Copying answers directly or indirectly from solution manuals, web pages, or your peers is a violation of the honor code. The assignments and code that you turn in should be written entirely on your own.
- Copying/soliciting a solution to a problem from the internet or another classmate constitutes a violation of the course's collaboration policy and the honor code and may have serious consequences.
- You may not actively search for a solution to the problem from the internet. This includes posting to sources like StackOverflow, Reddit, Chegg, CourseHero, etc.
- StackExchange Clarification: Searching for basic techniques related to Python, Pandas, Matplotlib, and other similar tools is fine.
- If you have taken this course prior to this semester and have done some/all of homeworks previous code or previous homework solutions may not be reused. You must start each homework from scratch.
- When in doubt, ask. If something doesn't seem right - you are not sure if you can use a resource or if you are feeling pressure to share a specific solution - please reach out to your instructor.

Note: Other information on the Honor Code can be found at <https://www.colorado.edu/sccr/honor-code>.

Individual Check-In

If you have a unique situation that may be affecting your work or class experience -or-

you need clarification of an email, Piazza, or ZOOM exchange, please email your instructor with the subject line “Individual Check-In”. Your instructor will email you back to set up a Zoom call to discuss the specific situation and work with you to develop a solution and/or strategy to move forward.

Service Interruptions and Support

Due to the online nature of the program, there is always the possibility of service interruptions. If you are unable to access the course materials (Moodle, Piazza, etc), we encourage you to visit <https://www.isitdownrightnow.com/applied.cs.colorado.edu.html>.

For non-urgent issues relating to platform support, please contact cscihelp@colorado.edu.

For urgent issues, for example, attempting to upload a homework assignment near a deadline, email your instructor directly.

In cases of documented exceptional illness or circumstances affecting assignments, instructors may or may not offer an alternative assessment (which may differ in form or content) at the instructor's discretion. Please consult the campus policy for medical leave if needed.

Final Projects

We understand students taking multiple courses may have more than one Final Project due at the end of the semester.

To give students flexibility in preparing and submitting their projects:

- All CSPB Final Projects are due by the established deadline, but may be turned in at any point during the Submission Window.

Final Projects will be available three weeks or more before the final day of classes.

UNIVERSITY POLICIES

Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation, or political philosophy.

For more information, see the [classroom behavior policy](#), the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

Requirements for Infectious Diseases

Members of the CU Boulder community and visitors to campus must follow university, department, and building health and safety requirements and all public health orders to reduce the risk of spreading infectious diseases.

The CU Boulder campus is currently mask optional. However, if masks are again required in classrooms, students who fail to adhere to masking requirements will be asked to leave class. Students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student Conduct & Conflict Resolution. Students who require accommodation because a disability prevents them from fulfilling safety measures related to infectious disease will be asked to follow the steps in the "Accommodation for Disabilities" statement on this syllabus.

For those who feel ill and think you might have COVID-19 or if you have tested positive for COVID-19, please stay home and follow the [further guidance of the Public Health Office](#). For those who have been in close contact with someone who has COVID-19 but do not have any symptoms and have not tested positive for COVID-19, you do not need to stay home.

Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

[Disability Services](#) determines accommodations based on documented disabilities in the academic environment. If you qualify for accommodations because of a disability, submit your accommodation letter from Disability Services to your faculty member in a timely manner so your needs can be addressed. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance.

If you have a temporary medical condition or required medical isolation for which you require accommodation, please contact Cailyn.Craven@colorado.edu. You do not need to state the nature of your illness with this alert. Also see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the [Honor Code](#). Violations of the Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty.

All incidents of academic misconduct will be reported to Student Conduct & Conflict Resolution: honor@colorado.edu, 303-492-5550. Students found responsible for violating the [Honor Code](#) will be assigned resolution outcomes from the Student Conduct & Conflict Resolution as well as be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. These behaviors harm individuals and our community. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who believe they have been subjected to misconduct can contact OIEC at 303-492-2127 or email cureport@colorado.edu. Information about university policies, [reporting options](#), and support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents related to these policies regardless of when or where something occurred. This is to ensure that individuals impacted receive an outreach from OIEC about their options for addressing a concern and the support resources available. To learn more about reporting and support resources for a variety of issues, visit [Don't Ignore It](#).

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance.

In this class, please email Cailyn.Craven@colorado.edu for assistance regarding religious obligations.

See the [campus policy regarding religious observances](#) for full details.

Mental Health and Wellness

Free and unlimited telehealth is available through [Academic Live Care](#). Please note that at this time this service is not available to students outside of the United States.

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Data retention summary

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