

DATA/ STAT 11900: Introduction to Data Science II
Winter 2026
University of Chicago

Class Time: Tuesdays and Thursdays 09:30 AM- 10:50 AM
Classroom: Crerar Library 011
Units/ Credits: 100 units

Instructor: Dr. Kriti Sehgal
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Office: Ryerson Phys Lab 260

Office Hours:
Time: 1:30 PM- 2:30 PM on Tuesdays and Thursdays,
and by appointment (Zoom or in-person)
Location: Ryerson 275A

Course Description:

This course is the second quarter of a two-quarter systematic introduction to the foundations of data science, as well as to practical considerations in data analysis. A broad background on probability and statistical methodology will be provided. More advanced topics on data privacy and ethics, reproducibility in science, data encryption, and basic machine learning will be introduced. We will explore these concepts with real-world problems from different domains.

Prerequisites:

The only prerequisite for this course is Data 118. Students who have not taken Data 118 should have an equivalent expertise in Python and Statistics.

Textbooks:

1. [The Chicago Guide to Data Science](#)
2. [An Introduction to Statistical Learning](#)
3. [Computational and Inferential Thinking: The Foundations of Data Science](#)

Software:

Students will need access to Jupyter Notebooks to complete assignments and view lectures. You must have a computer with Python 3 and Jupyter Notebooks installed or access to Google Colab to open and edit .ipynb files. You may also install Visual Studio Code and use it to open and edit .ipynb files.

Student Learning Outcomes:

1. Students will be able to view and analyze data in Python using Jupyter Notebooks and packages such as NumPy, Pandas, Matplotlib, and scikit-learn.
2. Students will be able to think critically about the use and cleaning of data.
3. Students will be able to clean, filter, analyze, and visualize datasets and use these methods to better understand and explain their data.
4. Students will be able to explain the difference between supervised and unsupervised learning and know when to apply each.
5. Students will be able to explain the difference between classification and regression and know when to apply each.
6. Students will be able to thoughtfully apply statistical and machine learning methods including linear regression, K Nearest Neighbors, Logistic Regression, K-Means Clustering, and Hierarchical Clustering.
7. Students will be able to apply methods of feature engineering and selection including regularization and to explain when and why these methods are necessary.
8. Students will be able to identify when a model is over- or under-fitting the data and apply methods to combat this.
9. Students will be able to use concepts of statistical inference and machine learning to engage with research questions.
10. Students will be able to interpret the results/output of their models in the context of their data and research question.
11. Students will be informed and critical readers of data-based arguments.

Course Communication:

1. We will use **Ed and Canvas** for all course-related communication. Students should post questions on Ed rather than emailing the instructional staff, as this allows everyone to benefit from shared answers and reduces duplicate questions. Students are also encouraged to respond to one another's questions on Ed.
2. **Before posting to Ed, please check whether your question has already been asked.** Duplicate questions may not receive a response. Please review the **Ed Discussion Guidelines**, which are available in a pinned post on Ed.
3. For individual matters, including personal concerns, accommodations, or grading questions, you are welcome to email me or attend office hours.
4. Course announcements will be made in lecture and posted on Ed and/or Canvas and will be considered known within one business day. Students are expected to check both platforms regularly.

Assessments and Grading Policy:

1. **Progress Checks** (15 total): **5%**
Progress checks are short, in-class quizzes administered on Canvas. They are designed to check understanding of material from the previous class.
2. **Homework** (6 total; lowest 1 dropped, 5 counted): **30%**
Homework assignments will be posted on Canvas. Students are encouraged to discuss questions with the TA or instructor during office hours. However, all submitted work must be completed independently.
3. **Labs** (8 total): **10%**
Labs provide hands-on practice with concepts covered in class. Labs are graded on a completion basis, and collaboration is strongly encouraged during lab sessions and outside of class. **Only half credit will be awarded if the lab section is not attended.** Exceptions to the attendance requirement are allowed only with documentation.
4. **Project** (includes one pager in Part-I, project presentation, jupyter notebook, 2-page report): **25%**
This is a group project with 2–3 students per group. Students will select a dataset of personal interest, analyze the data, and present their work during Week 9. Each group will submit a cleaned Jupyter notebook and a written report of no more than two pages summarizing their findings.
5. **Exams** (2 total): 15% each (**30%** total)
The course includes two in-person exams. The midterm will take place in class during Week 4, and the final exam will be cumulative and held during the last week of classes. Students are expected to take exams as scheduled. In cases of unavoidable conflicts, official documentation must be provided to request an alternative arrangement.

This grading structure is designed to support consistent practice, collaboration, and multiple ways of demonstrating understanding.

Late Policy:

All assessments must be submitted on time. **Late submissions are not accepted, and extensions are not granted.** To accommodate unforeseen circumstances, the grading policy includes built-in flexibility through the **dropping of the lowest homework score**. This policy is intended to account for personal challenges, technical issues, or other unexpected situations, and students are encouraged to use it thoughtfully. No additional homework or quiz scores will be dropped, and no further extensions will be provided.

Grading Scale:

Letter Grade	Range
A	93-100%
A-	90-92.99%
B+	87-89.99%
B	83-86.99%
B-	80-82.99%
C+	77-79.99%
C	73-76.99%
C-	70-72.99%
D+	66-69.99%
D	60-65.99%
F	0-59.99%

Regrade Requests:

Students may submit regrade requests through Gradescope within one week of the grades being released. Requests submitted after this period will not be considered.

Pass/ Fail (“P/F”) Grade:

A Pass/Fail grade may be given upon written request to the instructor before the reading period starts i.e. by Friday of Week 9. The grade of P will be awarded only for work of C- or better quality. Please consult [here](#) for more details.

Withdrawn (“W”) Grade:

A “W” (Withdrawn) grade indicates that a student has chosen, after Week 3 of the quarter, not to complete the course. Students who wish to withdraw must submit a written request to their adviser by 5 p.m. on the Monday of Week 9 of instruction, or by the day before the final project or exam is due, whichever comes first. Please consult [here](#) for more details.

Incomplete (“I”) Grade:

The mark “I” (Incomplete) is intended for a student who has not completed all course requirements by the end of the quarter but has participated actively in the course, completed the majority of the work at a passing level, and made satisfactory arrangements with the instructor to complete the remaining work. Students must submit a written request for an Incomplete to the course instructor via UChicago email and discuss their plans with their Academic Adviser before the end of the quarter. Please consult [here](#) for more details.

Use of Generative AI policy: You are not permitted to use ChatGPT, Google Bard, or any similar large language models for homework assignments. Doing so will be considered a violation of academic integrity. This restriction is in place because it is essential that you develop the ability to understand and write code independently. Mastering these skills now will enable you to use AI tools effectively and responsibly in the future.

However, for project, you may use AI tools with limitations. While you are allowed to incorporate them into your workflow, you must not simply copy and paste responses. Using AI is optional, but if you choose to use these tools, you must properly cite their contributions. This is an opportunity to learn how to engage with AI tools critically and ethically. Failure to cite AI-generated content will be treated as a violation of the University of Chicago’s Academic Honesty and Plagiarism policy.

Academic Integrity: Acting with academic integrity means, in brief, not submitting the statements, work, or ideas of others as one’s own. Students are expected to comply with University regulations regarding honest work. If you are in doubt about what constitutes academic dishonesty, speak with me before the assignment is due. Failure to maintain academic integrity on an assignment will result in a penalty befitting the violation, up to and including failing the course and further University sanctions. For more information, consult the student manual: <https://studentmanual.uchicago.edu/academic-policies/academic-honesty-plagiarism/>

Accessibility: The University of Chicago is committed to ensuring equitable access to our academic programs and services. Students with disabilities who have been approved for the use of academic accommodations by Student Disability Services (SDS) and need a reasonable accommodation(s) to participate fully in this course should follow the procedures established by SDS for using accommodations. Timely notifications are required to ensure that your accommodations can be implemented. Please meet with me to discuss your access needs in this class after you have completed the SDS procedures for requesting accommodations. For more information, please visit: <https://disabilities.uchicago.edu/>

Mental Health: Student Wellness’ Mental Health professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic

experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See:

<https://wellness.uchicago.edu/mental-health/>

Diversity and Inclusion: I value diversity and inclusion. I am committed to a climate of mutual respect and full participation. My goal is to create learning environments that are usable, equitable, inclusive, and welcoming. If there are aspects of the instruction or design of this course that result in barriers to your inclusion, achievement, or the accurate assessment of your learning, please notify me as soon as possible. Students with disabilities are also welcome to contact Student Disability Services to discuss a range of options to removing barriers in the course, including official accommodations.

Bias Reporting: The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University's Bias Education and Support (BEST) team.

See: <https://diversityandinclusion.uchicago.edu/resources/reporting-incidents/>

Accommodations based upon sexual assault: The University is committed to offering reasonable academic accommodations to students who are victims of relationship or sexual violence, regardless of whether they seek criminal or disciplinary action. If a student comes to us to discuss or disclose an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if we otherwise observe or become aware of such an allegation, we will keep the information as private as we can, but as faculty members of University of Chicago, we are required to immediately report it to a Department Chair or Dean or directly to the University's Title IX Coordinator. If you would like to speak with the Title IX Coordinator directly, Bridget Collier can be reached at bcollier@uchicago.edu. Additionally, you can report incidents or complaints by contacting UCPD at (773)702-8181 or your local law enforcement agency. For more information:

<https://studentmanual.uchicago.edu/university-policies/the-university-of-chicago-policy-on-title-ix-sexual-harassment/>