OLIVE-HARVEY COLLEGE

CITY COLLEGES OF CHICAGO

Introduction to Data Science

CIS 175 OHMC

Fall 2026

Course Information

Credit Hours: 3

Course Contact Hours: 3
Lecture Contact Hours:3

PCS Code: 1.2
Course Number: 021066

Lecture Meeting Information

Section OHMC **Class** 36740
Instruction Mode In Person
Meeting Mode Lecture
Location Olive-Harvey College
Room OH Bldg 0001 - Rm L404
Dates 09/09/2026 to 12/09/2026
Meeting Times 01:10 PM - 02:55 PM
on Mon,Wed

Instructor Name and Email

Name: Kriti Sehgal
Email: ksehgal@ccc.edu

Instructor Contact Information



Please Call Me
Dr. Sehgal

Office Hours:
Mondays and Wednesdays 3:10-3:40 PM

Office Location:
TBD

Course Communication:
Announcements will be communicated in class and via Brightspace. Outside of class, students can reach out to the instructor in the office hours or through emails by using their student CCC email account.

Welcome Message/Bio
Welcome to CIS 175: Introduction to Data Science! I am excited to have you in this course and am committed to helping you succeed.

As a student enrolled in this course, you are taking a great first step toward learning how to analyze data using the programming language Python. With the growing need for data science skills across industries, this course will prepare you to apply these skills both within and beyond the classroom.

This class assumes no prior programming knowledge. Through lectures, coding exercises, homework, and projects, students will develop coding and problem-solving skills that apply across disciplines. Success in this course requires consistent effort: attending class, actively engaging in discussions, and completing assignments on time.

I have set aside office hours to support you. These are valuable opportunities to ask questions, discuss the material, or seek guidance, and I strongly encourage you to make use of them. If my scheduled office hours do not fit your schedule, feel free to email me to arrange a meeting. Please note that

conceptual questions are best discussed in person, so use office hours rather than email for those. For other concerns, I respond to emails within 24 hours, Monday through Friday.

If you find yourself struggling or falling behind, do not hesitate to reach out. Together, we can work through challenges and ensure your success. Below, you will find important details about the course. Please review this syllabus thoroughly and let me know if you have any questions. Let's work together to make this semester a success!

Course Catalog Description

This course will address how to use data to study the world around us. Students will learn how to collect and store data, use programming languages to explore data, and study methods for making inferences about that data. In addition to learning to manipulate and test data, students will discuss when and how to use data and whether data is always neutral. Students will examine biases in data. The course explores appropriate uses and times surrounding data collection and usage. The course will encourage students to approach data from varying views to enhance skill sets for critical inquiry. Students will learn to see data in their everyday lives and work with exciting and relevant datasets for them and their communities. Computations will be done using programming languages and web-based interactive computing platforms.

Eligibility for college-level math or consent of Department Chair. 053579

Course Objectives

This course covers:

1. Data science pipeline.
2. Quantitative data-based arguments for information and critical reading.
3. Data analysis using Python and Jupyter Notebooks.
4. Integration of code, background information, results, and interpretation to communicate data analyses effectively.
5. Flexible problem-solving and programming skills applicable to a large variety of problems independently.

6. Foundational concepts of probability and statistics.
7. Probability and beginning statistics for implementation and data analysis.
8. Principles of privacy, confidentiality, fairness, and inclusive
9. Ethical implications while working with data.

Student Learning Outcomes

Upon successful completion of the course, you, as the student, will be able to:

1. Define data science
2. Code and plot in a programming language
3. Use relevant data science packages and software
4. Manipulate data (clean, filter, group, and visualize) datasets
5. Use dataset methods to explain their data
6. Explain statistical methods and probability as they relate to data science
7. Think critically about the use and collection of data
8. Engage critically on a quantitative data-based argument
9. Utilize statistical methods including hypothesis testing, confidence intervals, and bootstrap
10. Use concepts of statistical inference to engage with research questions
11. Make ethical decisions about data management and usage

Students this Course is Expected to Serve

Students who are interested in the subject of data science, mathematical probability, visual data. Students who are seeking careers in insurance, marketing, and social services will benefit from this course.

Texts, Materials, and Resources

The Chicago Guide to Data Science
Publisher: The University of Chicago

Our class will follow the University of Chicago's Data Science Textbook which is freely available at: https://ds1.datascience.uchicago.edu/intro.html

Methods of Instruction

Weekly instruction will largely be delivered through Jupyter Notebooks, which allow you to follow along and complete coding activities during lectures. Lectures will introduce new content and include practice problems designed to help you put the new material into context. Opportunities for collaborative learning with your peers will also be incorporated throughout the class sessions

Technology requirements: Computer and Internet Access.

Method of Assessment and Evaluation

There are four categories of assessments used to evaluate your grade: Attendance, Homework, Quizzes, Project.

1. **Attendance and participation (10%)**: Attendance and participation in the course are expected and required. Participation entails showing up to class ready to learn, asking questions, and working on in-class activities.

2. **Homework (30%)**: There are 5 homework assignments in this course. Homework will consist of a Jupyter notebook containing exercises to demonstrate your understanding of the course material. The objective of the homework is to provide additional opportunities to practice solving new problems with the concepts that were introduced in class. Importantly, while homework may be discussed with your peers, it's important that you do not share answers/code. All coding and work must be your own.

3. **Quizzes (30%)**: Throughout the term, there will be 10 quizzes administered during class. These quizzes are not meant to be scary, rather, they provide an opportunity for you and your instructor to assess your conceptual understanding of the material by applying what you've learned to new problems. Quizzes should take approximately 15-20 minutes. Proper quiz etiquette is expected during quizzes (e.g., arrive to class on time, no notes, no computers or other devices unless given permission by the instructor,

remain seated unless given permission to leave the classroom, etc.).

4. **Project (30%)**: A take home project will be assigned to provide an opportunity to apply the concepts learned in class to a real-life dataset. The project also emphasizes the importance of presentation and scientific communication of analyses.

Topical Outline

Course Calendar: This is a tentative course calendar and is subject to change throughout the semester.

Week	Dates	Topics	Assessments
Week-1	Sept-9 (Wed)	Course set-up, Jupyter notebooks set-up, Introduction to Data Science	
Week-2	Sept-14 (Mon) Sept-16 (Wed)	Introduction to Python and Jupyter Notebooks	Quiz-1 (Wed, in-class)
Week-3	Sept-21 (Mon) Sept-23 (Wed)	Lists	Quiz-2 (Wed, in-class) Homework-1 (Due Sun 11:59pm)
Week-4	Sept-28 (Mon) Sept-30 (Wed)	Arrays	Quiz-3 (Wed, in-class)
Week-5	Oct-5 (Mon) Oct-7 (Wed)	DataFrames DataFrames Exploration	Quiz-4 (Wed, in-class) Homework-2 (Due Sun 11:59pm)
Week-6	Oct-12 (Mon - **No Class**) Oct-14 (Wed)	DataFrames Exploration	Quiz-5 (Wed, in-class)

Week	Dates	Topics	Assessments
Week-7	Oct-19 (Mon) Oct-21 (Wed)	Groupby, Merge, Pivot Table	Quiz-6 (Wed, in-class)
Week-8	Oct-26 (Mon) Oct-28 (Wed)	Functions, Iteration, and Conditionals	Quiz-7 (Wed, in-class) Homework-3 (Due Sun 11:59pm)
Week-9	Nov-2 (Mon) Nov-4 (Wed)	Data Visualization	Quiz-8 (Wed, in-class)
Week-10	Nov-9 (Mon) Nov-11 (Wed - **No Class**)	Data Collection	Homework-4 (Due Sun 11:59pm)
Week-11	Nov-16 (Mon) Nov-18 (Wed)	Probability	Quiz-9 (Wed, in-class)
Week-12	Nov-23 (Mon) Nov-25 (Wed) (**Thanksgiving break Nov 26- 28**)	Simulations, Distributions, and Central Limit Theorem	
Week-13	Nov-30 (Mon) Dec-2 (Wed)	Simulations, Distributions, and Central Limit Theorem (continued) Dec-2: Work on your project	Quiz-10 (Wed, in-class) Homework-5 (Due Sun 11:59pm)

Week	Dates	Topics	Assessments
Week-14	Dec-7 (Mon) Dec-9 (Wed)	Dec-7: Work on your project Dec-9: Project presentations	Final Project due Dec-8

Final Grade Calculation

The following table depicts how much each assignment and assessment is worth as a percentage of the final grade:

Assessment	Percentage of final grade
Attendance and Participation	10%
Homework	30%
Quizzes	30%
Project	30%

Grading Scale

Grading Scale

Letter Grade	Percentage
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	Below 60%

Late Policy

All assessments (homework, quizzes, and project) must be submitted on time.

Late submissions WILL NOT be accepted, and extensions ARE NOT allowed.

If you encounter challenges or unusual circumstances, I encourage you to reach out to me. However, to maintain fairness for all students, I do not determine which

reasons qualify for extensions.

To accommodate unforeseen circumstances, I will drop your lowest homework grades and your lowest two quiz grades. These dropped grades are intended to cover issues such as technical difficulties or personal challenges that may arise. I recommend saving this allowance for such situations.

Please note that no additional homework or quiz grades will be dropped, and no extensions will be granted beyond this policy.

Use of AI in this Class

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.

Active Pursuit

Students who are not actively pursuing the course at midterm may be administratively withdrawn from the course and receive an "ADW" on their transcript. Active pursuit is the completion of assignments, in-class-projects and general activities of the class, as well as maintaining attendance that allows you the opportunity to effectively succeed in the course. Students will be considered as actively pursuing this course if they meet the following criteria at midterm:

- Completion of at least 50% of assigned assessments and
- Participation in at least 50% of class sessions

No-Show Withdrawal Policy

NSW – No-Show Withdrawal

Students are required to attend class and actively pursue as defined in each syllabus. Students will be issued a no-show withdrawal (NSW) under the following circumstances (see No-Show Withdrawals (NSW) & Refunds for information about the NSW refund policy):Students who have been issued an NSW by the instructor may, at the request of the instructor, be reinstated (RNS) into the class. See RNS – Reinstate (in a Class) for

more information.

- Courses that meet more than once per week: students who do not attend at least one (1) of the first two (2) class sessions will be withdrawn from the class by the instructor and issued an NSW.
- Courses that meet once per week: students who do not attend the first class session of a course which meets only once per week will be withdrawn from the class by the instructor and issued an NSW.
- Courses that are offered in 8 weeks or less: students who do not attend the first class session will be withdrawn from the class by the instructor and issued an NSW.

College Resources and Policies

Resources for Student Success – Students: Keep Learning

Navigate

Navigate is a comprehensive student support system that brings together students, faculty, advisors, and other support staff to assist students from enrollment to graduation and beyond. Students use Navigate to schedule appointments with key support departments such as Advising, Tutoring, and Financial Aid. Faculty use Navigate to communicate with students and support staff any concerns, attendance, course progress, and at-risk of failing alerts. To access Navigate, log in to your student portal at my.ccc.edu

Academic Support – Virtual Tutoring

Students are encouraged to get help and support with their studies by participating in individual and group tutoring through the Academic Support Services Department. Olive-Harvey's Academic Support Center offers free tutoring and academic support services to assist students in achieving personal and academic success. We encourage any student to seek tutoring to gain a deeper comprehension of course content and to enhance learning development. For more information or to schedule an appointment with a tutor, please go to my.ccc.edu and look for the "NAVIGATE" button. Further instructions on how to proceed will be given after clicking the button. For more information, please email us at OHC-Ask-A-Tutor@ccc.edu. Virtual Student Support Services is available at https://prepare.ccc.edu/virtual-student-services/.

Tutoring is offered in most subjects taught at the campus. We also provide supplemental instruction for our sciences, and other workshops that can help you on your academic journey.

Advising

Academic Advisors are available to assist you at every stage of your education at Olive-Harvey College —from clarifying education and career goals, to academic planning, to helping you succeed along your journey through graduation. Students can make an appointment to meet with their academic advisor by going to the Navigate system via your student portal at my.ccc.edu or speak with an Advisor virtually via Zoom https://cccedu.zoom.us/j/9093854051 or by going to the Virtual Student Service site at https://prepare.ccc.edu/ohvss/ .

Career Planning and Placement

Olive-Harvey's Career Planning and Placement provides comprehensive services to help you make informed decisions about your career plan. These services help you to prepare for a diverse and changing job market. Career Planning and Placement provides one-on-one career planning sessions, career and personal assessments, resume and cover letter assistance, interview and networking preparation, and internship and job search strategies. Virtual walk-in hours and appointments are available by going to the Virtual Student Service. Call or email career services for an appointment at 773/291-6366 or OHC-CareerServices@ccc.edu Email your appointment requests or questions to OHC-CareerServices@ccc.edu.

Computer Labs

Olive-Harvey College provides computer lab access for City Colleges of Chicago students. Computers and printing are available for students to write a paper, research for class, or check email in 2423, 3207, L426G, and SCLC 016. Student IDs are required. Visit Olive-Harvey College Labs and hours of operation at https://www.ccc.edu/colleges/olive-harvey/menu/Pages/Computer-Labs.aspx.

ACCESS Center

The ACCESS Center works directly with students and in coordination with faculty and administrators to facilitate reasonable accommodations for students with documented disabilities. The DAC strives to remove barriers to equal access and create a campus environment of inclusivity. Any student with a disability, including a temporary disability, who requires accommodations, should contact the Disability Access Center as soon as possible. It is the student's responsibility to contact the Disability Access Center and no accommodations will be made in the classroom unless directed and approved by the Disability Access Center. The contact information is: Room 1401, (773) 291-6345 ohc-dac@ccc.edu

Library – Virtual Services
Need help with finding sources for a paper, assignment, or other information need? Librarians are available to provide you with virtual assistance, Monday-Wednesday from 8:30am-6:00pm and Thursday from 8:30am-5:30pm. Please visit the Olive-Harvey College Library's website at https://www.ccc.edu/colleges/olive-harvey/departments/Pages/Library-System.aspx to connect with a librarian and access library resources.

Student Activities Center/Get Involved with Student Clubs/Organizations
The Office of Student Activities enhances the student experience through exposure to and engagement in co-curricular programming, events, leadership development, and student clubs. Students that want to gain or enhance leadership skills, participate in event planning and become peer advocates should strongly consider joining our student-led clubs and organizations. For more information, visit www.ccc.edu/studentorganizations or Monice Purnell mpurnell5@ccc.edu

Transfer Center
The Transfer Center is here to help you transition to your dream school. The Transfer Center provides 1:1 transfer advising, scholarship research assistance, campus tours, visits from college and university representatives, transfer fairs and information sessions, application and waiver assistance (to those who qualify), and exposure to articulation and transfer agreements, and other resources. Currently, services are being delivered virtually. Please email Tyanna McCann (Director of the Transfer Center) at tmccann3@ccc.edu to ask any of your transfer questions, schedule a zoom meeting or conference call. Remember it is never too soon to talk about the transfer process. The Transfer Center looks forward to assisting you.

Veteran Services Center
The Veterans Services Center is a centralized, on-site source of support and access to military affiliated information and resources. Our mission is to improve the capability, resources, well-being and success of all Military Affiliated Students (M.A.S.) attending Olive-Harvey College, and to assist them with transferring to four-year institutions, veteran internships, and entering the workforce. The Veterans Services team is staffed by veterans and skilled professionals who understand the unique challenges our veterans and military families face when transitioning from active duty service to civilian college life. If you or anyone in your immediate family has served, we encourage you to learn about your benefits and opportunities we provide! Schedule a Zoom appointment with gvillagomez13@ccc.edu, or call (773)

602-5152 to learn more.

Wellness Center
As a student, you may experience a range of issues that can interfere with academic success such as stress, anxiety, worry, sadness/depression, substance use, grief/loss, procrastination, loss of motivation, and financial struggles. To address these concerns, Olive-Harvey College Wellness Center offers free and confidential mental health counseling and case management services to students and manages the on-campus food pantry (Panther Pantry), Room 1308 . To get started, please contact the Wellness Center at 773-291-6283 or visit Room 1118 or virtually visit us:

https://cccedu.zoom.us/j/4111414306 .

Walk-in appointments are accepted. If you are in an immediate crisis, please call the Suicide and Crisis Lifeline at 988 or text the word "HOME" to 741741.

One Million Degrees
Olive-Harvey and One Million Degrees have partnered up to provide OHC students necessary support to keep students on track to graduate. In this program you will receive up to $1,000 in financial stipends (that's free money!), one-on-one support to help you succeed at OHC and other support services to keep you connected to the OHC community to ensure you graduate successfully. This is a FREE program and you may have already been selected! All you need to do is check your CCC email (search "OMD") and follow the next steps to secure your spot in the program. If you have any questions head to room 1410 for more information OR email olive-harvey@onemilliondegrees.org

Olive-Harvey College is a Caring Campus

"A culture of caring has become a hallmark of excellent community colleges." ~The Aspen Institute

The Caring Campus Initiative based on research that shows students who feel more connected to their college are more likely to be retained, persist from semester to semester, and complete their academic goals.

Caring Campus Faculty Commitments:

- Learn and regularly use students' names
- Clearly communicate about the course

- Create moments that matter
- Assign and assess early and often
- Practice Situational Fairness

District Policies

Students have a great deal of responsibility. The majority of these duties and responsibilities are laid out in the Student Policy Manual. Each student is encouraged to view this manual when they enroll in any CCC course. A copy may be obtained from the Admissions Office or Dean of Student Services or online

Academic Integrity

The City Colleges of Chicago is committed to the ideals of truth and honesty. In view of this, students are expected to adhere to high standards of honesty in their academic endeavor. Plagiarism and cheating of any kind are serious violations of these standards and will result, minimally, in the grade of “F” by the instructor.

ADA/Neurodiversity

City Colleges of Chicago values diversity, equity, inclusion, and accessibility of all. We recognize that neurodiversity* among the students, faculty, staff, trustees, and the community is critical to supporting a more inclusive learning and working environment. We believe that, when neurodivergent people are understood, valued, and empowered, we all stand to benefit from their important and unique contributions. This statement represents our commitment to providing appropriate supports based on each person’s individual needs and a culture that recognizes human diversity.

*Neurodiversity is defined as a strength-based approach to viewing differences in individual brain function and behavioral traits and as part of normal variation in the human population."

Administrative Withdrawal

Students are required to attend class. A student may be awarded an administrative withdrawal (ADW) at midterm if the instructor determines that the student is not actively pursuing completion of the course, based upon the instructor’s active pursuit criteria. Instructors are required to publish their measures of active pursuit and distribute them to students via their class syllabus during the first week of class. Active pursuit may be

measured by class participation, taking required examinations, quizzes, submission of papers, work assignments, class attendance, etc.

A student in an **ONLINE** class may be awarded an administrative withdrawal (ADW) **between midterm and the last day for student initiated withdrawal** if the instructor determines that the student is not actively pursuing completion of the class, based upon the instructor's active pursuit criteria. Instructors are required to publish their measures of active pursuit and distribute them to students via their class syllabus during the first week of class. Note: a student who logs into the learning management system (LMS, see Learning Management System) or another e-learning platform and engages in no other academic activities is **NOT** actively pursuing the class. That is, merely logging in to an online course does not constitute active pursuit.
Students who have been issued an ADW by the instructor may, at the request of the instructor, be reinstated (RNS) into the class. See RNS – Reinstate (in a Class) for more information.
If a student receiving an ADW repeats that course, only the last grade received will be included in the Grade Point Average (GPA) calculations; however, both grades will appear on the permanent academic record, will appear on the transcript, and will be counted as registered hours to determine Satisfactory Academic Progress and Academic Standing status. ***ADWs received from Fall 1982 through Spring 1988 will be counted as F's in a student's GPA calculation.*** See Graduation Grade Point Average for more information.

CCC policies for class withdrawals and refunds apply (see Class Withdrawals & Refunds for more information).

EEO and TITLE IX

City Colleges of Chicago ("CCC") is strongly committed to ensuring that its learning and work environments are free of discrimination and harassment, which includes sexual harassment. CCC has a zero-tolerance policy against all forms of discrimination or harassment. CCC will stop, remedy, and prevent the recurrence of discrimination or harassment through the enforcement of this policy. The Board of Trustees of the City Colleges of Chicago ("Board") prohibits unlawful discrimination or harassment with respect to hire, terms and conditions of employment, continued employment, admissions, or participation in Board programs, services, or activities (regardless of whether such programs, services, or activities occur on CCC property) on the basis of

race, color, national origin, ethnicity, sex, gender, gender identity, age, religion, citizenship status, sexual orientation, sex stereotypes, sex characteristics, marital, family or parental status, pregnancy, order of protection status, disability, genetic information, military status, or status of a member of any other protected class under federal, state, or city law. As a public community college district, CCC adheres to federal, state, and city laws and regulations regarding non-discrimination. Should any federal, state, or city law or regulation be adopted that prohibits discrimination based on characteristics not included in this policy, discrimination on those additional bases will also be prohibited by this policy. More information can be found here.

Federal Family Educational Rights and Privacy Act (FERPA)

Our college also abides by federal privacy laws on behalf of students and employees. FERPA

Inclement Weather Policy

If it becomes necessary to cancel classes due to emergency or inclement weather conditions, the Program Director, or designee will inform the students by email. Students should maintain their contact information (email, phone number) current with the CCC Emergency Notification System for current notifications. Please note, in clinical education, students must abide by facility policies for inclement weather.

Student Conduct

City Colleges of Chicago students are expected to conduct themselves in a manner which is considerate of the rights of others and which will not impair the educational mission of the College. Misconduct for which students are subject to College Discipline (e.g. expulsion) may include the following: (1) all forms of dishonesty such as stealing, forgery, (2) obstruction or disruption of teaching, research, administration, disciplinary proceeding, (3) physical or verbal abuse, threats, intimidation, harassment, and/or other conduct that threatens or endangers the health or safety of any person, and (4) carrying or possession of weapons, ammunition or other explosives.