Syllabus

Fundamentals and Principles of Data Science

Course No.	DS 340
Sections	004 CRN 16164
Title	FUND. AND PRIN. OF DS
Time & Place	Monday abd Wednesday, 10:00 AM - 11:20 AM, CKB 120
Instructor	Jaini Bhavsar Email: jkb37@njit.edu Office Location: GITC 2119
Course Home Page	Course Material will be uploaded on **Canvas**
Prerequisite(s)	Prerequisites: CS 114 and (MATH 333 or MATH 341) with a grade C or better.
Office Hours	Monday, 11:30 AM to 12:55 PM, GITC 2119
Instructor Response Schedule	**Email**: Normally I will respond to a student email by the end of the next workday or sooner. If I am traveling or offline for another reason I will announce that fact by email to all students and/or by setting up a vacation responder on NJIT Gmail. In those cases, response times will be longer (up to three days). If there is a difficult issue I will acknowledge that I received the message and give an estimate of when it can be resolved. Grading will normally also take about two weeks. **Exams:** Exams will be graded in one to two weeks.
Description	This course will introduce you to the fundamentals of data science and equip you with the skills to analyze and interpret data effectively. You will learn how to use Python and Pandas, key tools in data

	science, to manage and manipulate data. The course covers essential topics such as data cleaning, transformation, and visualization, along with an introduction to machine learning techniques. We will also explore the ethical considerations of data use.
Course Topics	At the end of the course, students will have a working knowledge of the following subjects and techniques: ● Basics of Data Science ● Introduction to Data Science Tools and Systems ● Coding with Python and Pandas for Data Science ● Data Sourcing and Management ● Data Cleaning (Veracity) and Data Integration (Variety) ● Data Transformation/Consolidation (Variety, Volume/Velocity) ● Data Selection/Reduction (Volume/Velocity) ● Data Analysis and Visualization ● Introduction to Machine Learning ● Supervised Learning ● Unsupervised Learning ● Advanced Machine Learning ● Statistical Learning ● Large Language Models ● Ethics in Data Use Topics are subject to change or omission, depending on time.
Text Book(s)	**There will be no textbook.** **All material will be on Canvas, or on the Web, or handed out in class.**
Grading Policy	There will be ● Final Exam (25%) ● Midterm Exam (25%) ● 1 Project (20%) ● Assignments (20%) ● 1 Quiz (10%)

Assignments:

There will be four programming homework assignments covering all the material that we are studying in the class. Late policies will be announced along with the assignments. *In general, there will be late penalties.*

Assignments handed in more than 5 days late will receive zero credit unless there is WRITTEN documentation of a SERIOUS health problem.

Attendance

Attendance will be taken in every class.

You CANNOT make these points up later. You have to be in class.

Any attempt to fake attendance will be immediately reported to the Dean of Students.

Extra Credit

There will be **NO** way to get extra credit. Please don't ask.

A: 90% or above,

B+: [83% - 90%),

B: [75% - 83%),

C+: [67% - 75%),

C: [60% - 67%),

F: Below 60%.

Letter Grade:
At the end of the semester, I will add up your total points and curve the results for the whole class.

The department has voted on a stringent curve for all courses. Only the top 25% of the class should expect an A.

Furthermore, up to 20% of the class may face a C+, C, or F.
In my experience. Also, note that most students typically get all the

	points on the lab assignments. Thus, your position in the curve and your class grade depend almost entirely on the exams. **Make-up Policy:** Exam makeup *after* missing the exam will be only allowed in extreme cases with written proof, e.g., hospital stay, car accident with police report, and similar. Exam makeup due to travel may or may not be approved ahead of time and **never** after the trip. As above, trips related to an extreme emergency, e.g., death in the family, will be allowed with written proof (death announcement in a newspaper or government death certificate with *official* English translation, if from a foreign country).
Academic Support System	**NJIT Academic Calendar:** **https://www5.njit.edu/registrar/calendars/** **This contains drop/add and other important dates.** **Resources for NJIT Online Students** IST Service Desk The IST Service Desk is the central hub for computing information and the first point of contact for getting help and reporting issues related to computing technology at NJIT. Then click the button on the right that says or call (973) 596-2900 Monday - Friday from 8:00am – 9:00pm Academic Advising Success Center **Is for undergraduate students only**. Ying Wu College of Computing has its own advising team. Academic Support and Student Affairs "From questions about becoming a student at NJIT – to student engagement – to searching for information on career development, the Division of Academic Support and Student Affairs Staff is here to help." YWCC has its own Tutoring Service: https://computing.njit.edu/tutoring

[Additional Tutoring Centers](#)

[The Writing Center](#)

[Bookstore](#)

NJIT has a bookstore. Please check its web page how COVID is affecting operations.

[Canvas Help Page](#)

Canvas support for students.

[Center for Counseling and Psychological Services](#)

"The NJIT Center for Counseling and Psychological Services (C-CAPS) is committed to assisting students in the achievement of their academic goals as well as benefiting from their personal experience on campus. College life can be personally challenging and stressful at times. We believe that the educational process is an important component of the development of the individual as a whole person. Our goal is to optimize the college experience and improve the quality of the lives of our students by promoting their mental health and facilitating students' personal, academic and professional growth."

[The Learning Center](#)

"Our mission is to assist students both in the classroom and beyond by providing tutorial services, academic coaching, academic and personal enrichment workshops and staff and peer support so students can meet the demands of their coursework and are prepared for life after graduation."

[Robert W. Van Houten Library](#)

"The Van Houten Library offers electronic and print resources essential to the mission of New Jersey's science and technology university, including a core collection of academic books, databases, and journals, as well as research and consultation services."

[Student Disability Services](#)

	"The Disability Support Services office works in partnership with administrators, faculty and staff to provide reasonable accommodations and support services for students with disabilities that have provided our office with documentation to receive services." [Student Financial Aid Services](#) "Student Financial Aid Services (SFAS) at NJIT is committed to providing you with every opportunity to obtain funding to support your undergraduate educational costs at NJIT."
Computer Use	**You have to bring a laptop to class, charged and working.** **Canvas/Google Docs:** Class material will be posted on Canvas. **Jupyter Notebook:** **https://jupyter.org/** **NJIT Passwords:** If there is an NJIT password problem, try this: http://myucid.njit.edu This is the UCID password reset.
Cheating	*"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:* *[http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf (Links to an external site.)](http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf).* *Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office.* ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or***

	suspension or dismissal from the university. *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"* You may NOT copy lines of code from anybody or from ChatGPT. You may NOT use code in your program where you don't understand WHY it works, even if it works, and even if you wrote it yourself.