Hofstra University

Department of Computer Science / Department of Mathematics

CSC 108-01 / MATH 080 ***Foundations of Data Science*** Spring 2026

Class Time: MW 9:40 A.M.-11:05 A.M.
W 2:40 P.M.-4:35 P.M.

Classroom: Science and Innovation Center 0126
Science and Innovation Center 0126

Instructor: Angel Pineda, Ph.D.
Email: angel.pineda@hofstra.edu
Personal Zoom Meeting ID:
https://hofstra.zoom.us/my/angel.pineda

Office: Roosevelt 315C
Phone: 516-463-3441

Faculty Office Hours:

Monday: 7:00 A.M.-7:45 A.M.
Wednesday: 7:00 A.M.-7:45 A.M. and 11:15 A.M.-12:45 P.M.
Office hours will be held both in person and over Zoom by request

Required Textbook: Data Science Foundations with Python zylabs by Chris Chan, Matt Rissler and Aimee Schwab-McCoy, zyBook ISBN: 979-8-203-06183-6.

How to access the textbook?
1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: HOFSTRACSC108Spring2026
3. Subscribe

Additional Free Resources:
Python for Data Analysis by Wes McKinney
https://wesmckinney.com/book/

Hands-On Machine Learning with PyTorch and Scikit-Learn by Raschka, Liu, Mirjalili
https://github.com/rasbt/machine-learning-book

Software: Python, SQL

Course Description:
Foundations of data science from three perspectives: inferential thinking, computational thinking, and real-world relevance. Given data arising from some real-world phenomenon, how does one analyze that data to understand that phenomenon? The course teaches critical concepts and skills in computer programming and statistical inference, in conjunction with hands-on analysis of real-world datasets, including economic data, document collections, geographical data, and social networks.

Co-requisite: MATH 071, *Prerequisite:* CSC 015

Course Objectives:
Upon successful completion of this course, students will be able to:

- *Understand what is data science?*
- *Learn how to use programming packages for Data Science*
- *Wrangle data (select, arrange, summarize, group data)*
- *Visualize different types of data (categorical and numerical data)*
- *Clean data for analysis (renaming, dealing with missing data)*
- *Apply basic probability and statistics in a data science context*
- *Apply and understand the basics of machine learning*
- *Apply and draw inferences from real data sets using data science tools*
- *Understand the ethical issues arising from data science including bias and reproducibility*

Course Homepage (Canvas):
Here you will find four features that will be used in this course:

- *Email:* make sure that your email on Canvas is one that you check regularly. Homework assignments, announcements and other class related information will be sent via email.
- *Course Syllabus, Assignments and Modules:* information about the course, material covered each week, and assignments.
- *Discussions:* this online forum allows students and faculty to communicate.
- *Grades:* students will be able to keep track of their grades online.

Assessment of Student Learning:

Class Participation (5 %)
The grade will be based on attendance and participating in class by asking and answering questions. Students can miss up to 8 class meetings without a medical excuse, and it will not affect their grade. For any additional missed class after that, students will lose 1% of their grade (up to 5%).

Textbook Participation Activities (5 %)
Textbook Challenge Activities (5 %)
Textbook Labs (5 %)

Assignments and Quizzes (10 %)

Exam 1 (25 %): Wednesday, March 4
Exam 2 (25 %): Wednesday, April 22

Final Project (20 %)
Initial Project Presentation (in class): Wednesday, April 29
Initial Jupyter Notebook: Monday, May 4
Final Project Presentation: Wednesday May 13, 8:00 A.M. – 10:00 A.M.
Final Jupyter Notebook: Wednesday May 13, 8:00 A.M. – 10:00 A.M.

The class project will explore a topic of your choice in data science. You will work by yourself or in pairs. The main idea is for you to find a problem that you are excited about which uses material from this course. Possible topics could be extensions of material in our text, may come from your own research projects, other classes or from outside sources. Details of the final project will be given after Exam 1.

Tentative Grading Scale

Percent	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	60-66	0-59
Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F

The exact grading scale will be determined after the final exam. The numerical scores in the tentative grading scale guarantee the associated letter grade but the instructor may change the scale to the student's benefit.

Dates to Remember

February 2:	Last day to add without department permission
February 16-17:	President's Break (No Classes)
February 22:	Last day to add/Last day to drop without a "W" on transcript
March 6:	Last day to file Pass/D/D+/Fail form
March 15-21:	Spring Break
March 16:	Mid-Semester Advisories due
April 9:	Last day to withdraw from individual courses
May 6:	Last Day of Classes/Last day to withdraw from all courses
May 7:	Snow Day (will have virtual meetings to discuss projects)
May 8:	Study/Reading day

Class Policies

- Attendance is required. Students are expected to arrive on time.
- Failure to attend a class with an unexcused absence will result in a zero for quizzes given on that day. To receive an excused absence, proper documentation and instructor approval is needed.
- Late assignments will not be accepted after the solutions are distributed. In case assignments are handed in before the solutions are posted it will be marked 10% off for every day (or part thereof) it is late.
- No make-up exams will be given, unless you have a medical or family emergency. These emergencies require valid documentation. The grade for a missed exam is zero.
- Cell phones (or other technology not related to the class) in the classroom is only allowed with express permission of the instructor for special circumstances. In general cell phone or other potentially disruptive technology use is not allowed in class.

Suggestions for Success

- The course requires a time commitment of about 8 hours outside of class time per week (2 per credit hour). The material builds on itself, so it is very important not to fall behind.
- Find a study partner or group.
- Treat your assignment and quizzes as a study guide for future exams.
- Read the textbook. It will complement the presentation in lecture and help give you the big picture of the material.
- I encourage you to come to office hours regularly.

Academic honesty

You are expected to follow the Hofstra University Honor Code at all times. All forms of academic dishonesty are serious ethical and professional infractions. Hofstra's policy on academic honesty reads: "The academic community assumes that work of any kind – whether a research paper, a critical essay, a homework assignment, a test or quiz, a computer program, or a creative assignment in any medium - is done, entirely and without unauthorized assistance, by the individual(s) whose name(s) it bears." See the "Procedure for Handling Violations of Academic Honesty by Undergraduate Students at Hofstra University" (https://www.hofstra.edu/fps/11.html) for a detailed discussion of dishonesty and Hofstra's procedures for handling violations. Violations will be reported.

Working together with other students in the HW and the project is allowed and encouraged. In fact, having a study group is one of the ways that you can learn the material better. At the time of submitting your HW or your project, make sure that you write the solutions yourself and understand the submitted work. *You can use online sources to help you understand the problems and get ideas for the solutions but copying solutions online without working them out and writing them up yourself is cheating.*

Use of AI tools is permitted with acknowledgement in assignments. You may use AI/ML in this course if you use clear and accurate citations in the assignment submission where and how AI/ML tools have been used. *You should understand and be able to explain any solution generated by AI.* Any assignment that was completed with AI/ML tools must contain an appropriate citation. For example, when citing Chat GPT follow the guidelines here:
https://apastyle.apa.org/blog/how-to-cite-chatgpt

The academic integrity information allowing AI with acknowledgement is included here:
https://www.hofstra.edu/provost/policies-wording-syllabi-ai-acknowledgement.html

AI is not allowed in quizzes or in-class exams.

Accessibility

If you believe you need accommodations for a disability, please contact Student Access Services (SAS). In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, qualified individuals with disabilities will not be discriminated against in any programs or services available at Hofstra University. Individuals with disabilities are entitled to accommodations designed to facilitate full access to all programs and services. SAS is responsible for coordinating disability-related accommodations and will provide students with documented disabilities accommodation letters as appropriate. Since accommodations may require early planning and are not retroactive, please contact SAS as soon as possible. All students are responsible for providing accommodation letters to each instructor and for discussing the specific accommodations needed with them and how they can be best implemented in each course. For more information

on services provided by the university and for submission of documentation, please contact Student Access Services, 107 Student Center, (516) 463-7075.

Religious observances
If you have a religious obligation that conflicts with your participation in the course, you are responsible for notifying me far enough in advance for us to discuss your situation and agree on accommodations. For more information, see Part II(B) of "Academic Freedom and Civil Liberties of Students at Hofstra University" (https://www.hofstra.edu/fps/12.html).

Diversity
Hofstra University fosters a belief in an inclusive intellectual community, enriched and enhanced by the representations of diversity on the campus and within its learning spaces. Students from diverse backgrounds and perspectives will be well served in this education experience, and learning needs will be a priority in and out of the classroom. The diversity of identities and experiences that students bring to this class will be viewed as a resource, strength, and benefit. It is the goal and the responsibility of the instructor to present materials and activities respectful of diversity dimensions - race, gender, sexuality, ability, age, socioeconomic status, ethnicity, religion, culture, and other visible and nonvisible identities.

If you have any concerns about the class environment, I encourage you to speak with me. If you'd like to discuss issues related to your identity or how you might identify or are looking to connect with other students with identities similar to your own, please contact the Office of Intercultural Engagement and Inclusion at (516) 463-6957 or IEI@hofstra.edu. If you've experienced or been a witness to a discriminatory incident, please contact the university's Chief Diversity and Inclusion Officer at diversityinclusion@hofstra.edu.

Discriminatory harassment, relationship violence, and sexual misconduct
Hofstra prohibits sexual and other discriminatory harassment, stalking, domestic and dating violence, sexual assault and other sexual misconduct. If you or someone you know believes they have been subjected to any of these offenses, help is available. To make a report, or for more information (see https://www.hofstra.edu/title-ix/about.html), please contact the Title IX Officer for Student Issues at (516) 463-5841 or StudentTitleIX@hofstra.edu or Public Safety at (516) 463-6606. Confidential resources and support are also available from medical and counseling professionals in the Student Health and Counseling Center at (516) 463-6745 and clergy in the Interfaith Center.

Tentative Topics

1. Introduction to Data Science
2. Programming packages for Data Science
3. Probability and Statistics
4. SQL for Data Science
5. Data Wrangling
6. Data Exploration
7. Regression
8. Evaluating Model Performance
9. Supervised Learning
10. Unsupervised Learning
11. Artificial Neural Networks
12. Artificial Intelligence
13. Possible Special Topics: Git, Using the StarHPC Cluster, Bias in AI

The material in this syllabus may be changed at the instructor's discretion. Any changes will be communicated to the students.