Syllabus

Data Analytics with R Programming

Course No.	DS 636
Sections	101 CRN 92352, 103 CRN 92353, 105 CRN 92354
Title	DATA ANALYTICS WITH R PROGRAM
Time & Place	Section 105- Tuesday, 6:00 PM - 8:50 PM, FMH 108 Section 101 - Thursday, 6:00 PM - 8:50 PM, KUPF 108 Section 103- Friday, 6:00 PM - 8:50 PM, ECEC 100
Instructor	Jaini Bhavsar
Course Home Page	Course Material will be uploaded on **Canvas**
Prerequisite(s)	Entry-level courses in programming, probability and statistics (e.g MATH 333, CS 280, or equivalent courses with permission of the instructor).
Instructor	**Jaini Bhavsar** Office Room No.: 2119 GITC Building Email : jkb37@njit.edu
Office Hours	Friday, 4:00 PM to 5:30 PM, 2119 GITC

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 by 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 teach how to program in R and how to use R for effective data analysis. The students will learn how to install and configure R necessary for an analytics programming environment and gain basic analytic skills via this high-level analytical language. The course covers fundamental knowledge in R programming. Popular R packages for data science will be introduced as working examples. The format of the course will include lectures by the instructor, computing labs, class discussion, directed reading, and student presentation or project.
Course Topics	At the end of the course, students will have a working knowledge of the following subjects and techniques: ● Introduction R Nults and Bolts (I) ● R Nults and Bolts (II) ● Getting Data In and Out of R ● Control Structures and Functions ● Loop Functions ● String Operations (stringr package) ● Data Manipulation (dplyr, reshape2 packages) ● Probability Basics & Data Exploration ● Regression and Classification (linear models) ● Model Selection + SVM and other Representative Classifer ● Clustering ● R Graphics and Debugging; Packaging & Profiling Topics are subject to change or omission, depending on time.
Text Book(s)	• R Programming for Data Science, by Roger D. Peng All material will be on Canvas.

Grading Policy	There will be - Final Exam (30%) - Midterm Exam (25%) - 1 Project (25%) - Lab Exercises (20%) **Lab Exercises:** There will be lab assignments every week covering all the material that we are studying in the class. Late policies will be announced together 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 first point of contact for getting help and reporting issues related to computing technology at NJIT. Students can put in a ticket with the service desk: https://servicedesk.njit.edu/CherwellPortal/IST or call (973) 596-2900 Monday - Friday from 8:00am – 9:00pm Academic Integrity "New Jersey Institute of Technology is an institution dedicated to the pursuit of knowledge through teaching and research. The university expects that its graduates will assume positions of leadership within

their professions and communities. Within this context, the university strives to develop and maintain a high level of ethics and honesty among all members of its community. Imperative to this goal is the commitment to truth and academic integrity. This commitment is confirmed in this NJIT University Code on Academic Integrity."

[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."

[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 can bring a laptop to class, charged and working. Or you can use lab computers by logging in with your UCID and password. **Canvas/Google Docs:** Class material will be posted on Canvas. **R studio:** **https://posit.co/** **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.).* *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.