Course Syllabus

DS 636: Data Analytics with R Programming
Spring 2023

Instructor: Dr. Yajuan Li
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Office: GITC 4309
Office Hours: Monday: 10:00-11:00 am & 6:00-7:00 pm (Office & Webex)
Grader: Shah, Krisha krs@njit.edu

Course Overview and Learning Outcomes:
This course will teach how to program in R and how to use R for effective data analysis. The students will learn 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. When you have completed this course, you should be familiar with R programming and use it to analyze/solve real data science problems.

Prerequisite: Some basic knowledge of programming, probability, and statistics. If in doubt about the prerequisites, please consult with the instructor for permission to take the class.

Textbooks:

- R Programming for Data Science, by Roger D. Peng, https://leanpub.com/rprogramming
- An Introduction to Statistical Learning with Applications in R, by Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani
- Using R for Introductory Statistics, by John Verzani, Chapman & Hall/CRC, 2004, ISBN 1584884509
- Advanced R, by Hadley Wickham, ISBN 9781466586963 https://adv-r.hadley.nz/

Attendance: You are supposed to attend all the classes. Participation is highly encouraged to make the class more interactive. In general, students who attend class regularly perform much better than those who come only occasionally. If you miss one class, be sure to consult one of your classmates about the content of the lecture and use canvas to get notes, exercises, assignments, deadlines, and announcements.

Late Policy
For submission after due time, 50% off the full points for within 24 hours late, and no submission will be accepted after that. No late submissions will be accepted for quizzes and exams. Students can get extended deadline if they have special/emergency reasons verified from Dean of students. https://www.njit.edu/dos/student-excusals

Exam Policies
There will be one midterm and one final exam. Be sure that you will be present for all of your exams. Respondus LockDown Brower and Monitor can be used to monitor and proctor the

test. All students are required to have a working webcam in order to take the exam. More information about Respondus Lockdown Browser can be found at https://web.respondus.com/student-help/

You must bring a student ID to all exams. There are no late submission or makeup for exams. Students who have special/emergency reasons to reschedule exams must apply and get approval of testing accommodation from the Office of Accessibility Resources and Services. https://www.njit.edu/accessibility/requesting-testing-accommodations

Course Grade:

- Homework and quizzes (15%)
- Project (15%)
- Research Report (10%)
- Midterm Exam (25%)
- Final Exam (35%)

Grading Scale:

A: 93 and above; B+: 86-92.9; B: 78-85.9; C+: 70-77.9; C: 60-69.9; F: Below 60.

*Final grade will not be curved unless necessary.

Tentative Course Topics (Subject to changes according to progress)

Week	Topic
1	Introduction: overview of class, getting started with R
2	R Nuts and Bolts
3	Getting Data In and Out of R
4	Control Structures and Functions
5	Loop Functions and String Operations
6	Data Manipulation
7	Probability Basics & Data Exploration
8	Midterm Exam
9	Spring break
10	Probability distributions
11	Regression and Classification
12	SVM and other Representative Classifiers
13	Clustering

14	R Debugging; Project Presentation
15	Final review

Collaboration and Honor Code

Each student is responsible for his/her own work. Students may discuss problems together but must write up their own solutions. When writing up the solutions, students should write the names of people, if any, with whom they discussed the assignment. Note that copying homework or programming assignments, in full or in part is forbidden. Students found cheating or plagiarizing will be immediately referred to the Dean of Students and the NJIT Committee on Professional Conduct and subject to Disciplinary Probation, a permanent marking on the record, possible dismissal, and an "F" grade in the course. All submitted assignments will be checked for similarities, and plagiarism and guilty students identified. In the exam, each student is required to sign the Honor Code Agreement "On my honor, I pledge that I have not violated the provision of the NJIT Student Honor Code."

University Policy on Academic Integrity

"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.

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"

*Students will be notified in class of any changes to the syllabus.