Stevens Institute of Technology

FE513 Financial Lab: Database Design

Syllabus

Introduction

Welcome to FE513! The course aims to introduce the required techniques and fundamental knowledge in data science techniques. It helps students to be familiar with database and data analysis tools. Students will be able to manage data in database and solve financial problems using R program packages. This course is designed for graduate students in the Financial Engineering program at the School of Business.

Expected Learning Outcomes

- Use R to scrape, clean, and process data
- Use database to store data locally
- Use statistical methods and visualization to quickly explore data
- Apply statistics and computational analysis to make predictions based on data
- Effectively communicate the outcome of data analysis using descriptive statistics and visualization

Course Information

Room: Hanlon Financial Systems Lab (Babbio 4th floor) and Blackboard Collaborate(Online)

Time: Tuesday (8:00pm – 8:50pm)

Instructor

Xingjia(Lauren) Zhang

Office: Babbio 5th floor (in front of Room 547)

Office hour: Tuesday 3:00pm – 5:00pm, or by appointment

Email: xzhang21@stevens.edu

Required Textbook

None. Instead, we have a list of recommended readings.

Grading

Your final grade will be determined by the number of points you collect.

Homework: 60%

Final: 40%

Week		
1(08/28)	Intro to course, working environment setup	
2(09/04)	Basic R programming, Usage of Packages and functions	
3(09/11)	R I: Conditional statements and loops	Assignment I Publish
4(09/18)	R II: functions and visualization	
5(09/25)	SQL I: create table, Input data, Output data	
6(10/02)	SQL II: Basic selection clauses and subquery	
7(10/09)	No class(Monday Class Schedule)	
8(10/16)	Connect R with PostgreSQL, R APIs	Assignment I Due Assignment II Publish
9(10/23)	Text mining in R	
10(10/30)	Time series analysis in R Classification and Clustering in R	
11(11/06)	Database Design I	Assignment II Due Assignment III Publish
12(11/13)	Database Design II	
13(11/20)	MongoDB	
14(11/27)	HADOOP and Big Data	
15(12/04)	Final exam	Assignment III Due

* We will try to cover all topics in the syllabus and may adjust based on our progress. Please let me know if you have any concern or question.

Online Videos

All lectures will be posted online and should be available 48 hours after meeting time.

Regrading Policy

- It is very important to us that all assignments are properly graded. If you believe there is an error in your assignment grading, please submit an explanation via email me **within 7 days of receiving the grade**. No regrade requests will be accepted orally.
- **This course has a zero tolerance policy for academic dishonesty, and anyone caught will immediately receive an F for the course grade.** You **may not** under any circumstances give a copy of your code to another student, or use another students' code to help you write your own code.
- Identical assignments not only include 100% identical works, but also include works with different variable names and comments but the same logic, code style, etc..
- **Due dates are firm.** Late submission will not be accepted under any circumstance without prior notice and permission from the instructor. At least 20% Points will be deducted for late submission without notice. For full-time students, excuses such as "busy for on-campus job", "preparing for interview", "working on other courses" are not accepted. For part-time students, please notice the instructor in prior if you have "heavy work load", "business travel", "business meeting", etc. which may affect the homework submission.