CMPE 140
Introduction to Computing for Economics and Management

2024-2025 Fall semester

Course Objectives

By the end of this course you will be able to

- apply structured programming concepts,
- write R programs using basic programming structures,
- find and correct errors in your programs,
- write R programs for descriptive analysis of data,
- visualize your data with built-in R graphics.

Instructors

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Class hours

The instruction will be **face-to-face**. The meeting hours are:

- Lectures: WW56
- PS: F6
- Lab: FF78

Attendance will be monitored in PS and Lab hours, and active participation is expected and counts toward your final grade. On the contrary, attendance to lectures is not mandatory, but is strongly recommended. It is your responsibility to keep up with the lecture content. Lecture material will not be repeated in the labs. We expect you to have studied the week's material before the PS and lab session.

The lectures and problem-solving sessions will not be **recorded.** Therefore, we recommend that you attend the classes, take notes if needed and study the material on time. Otherwise, it may become impossible to digest the entire material at once.

Textbooks

1. Norman Matloff, *The Art of R Programming*. No Starch Press, 2011.
2. Tilman M. Davies, *The Book of R*. No Starch Press, 2016.

Lecture schedule

Table 1: Details of CMPE140 Lecture Schedule. Subjects with bold fonts can span more than a week.

Week	Lecture date	PS+Lab date	Subject
1	25.09.2024	27.09.2021	Introduction to Computing: Background and Theory
2	02.10.2024	04.10.2024	Programming concepts. Introduction to R. Basic operations.
3	09.10.2024	11.10.2024	**Vectors** and related operations.
4	16.10.2024	18.10.2024	Basic plotting. Random number generation and simulation.
5	23.10.2024	25.10.2024	Decomposition and **Functions** (Testing and Debugging)
6	30.10.2024	01.11.2024	Conditionals and Decision structures
7	06.11.2024	08.11.2024	Iterative Reasoning and Loops.
8	13.11.2024	15.11.2024	Matrices and high-dimensional operations *Midterm*
9	20.11.2024	22.11.2024	Tuples, Lists.
10	27.11.2024	29.11.2024	Data frames.
11	04.12.2024	06.12.2024	Factors and categorical variables.
12	11.12.2024	13.12.2024	Data import. Built-in data sets. More plotting.
13	18.12.2024	20.12.2024	Recursions
14	25.12.2024	27.12.2024	Correlation and regression

Grading

Grading will be based on **seven** bi-weekly **quizzes** (5% each), one **Midterm** (25%), one **Final** exam (30%), and **attendance** (10%). Submitted exams will be graded semi-automatically.

It might be a good idea to have R software (such as Rstudio+R) **installed on your computer** to get your hands dirty or else you shall have the opportunity to run your scripts on cloud.

Note on automated (binary) grading: If we use automated (binary) graders, your submissions must be **valid R programs that do run**. If one part of the assignment **does not run** ("source" in R jargon), or prints an error message and stop, you will get **zero points** for that part, regardless of how simple your error is.

Note on automated (non-binary) grading: If we use automated (non-binary) graders, you will have the option of getting your source code partially graded.

Getting feedback: Solutions to quizzes/exams will be made available. If you get a low grade but you think your submission is correct, let us know within the objection period. However, you should make a case about why your code is correct and what seems to be wrong on our part. Unsupported objections will **not** be considered.

Lecture Materials

Lecture materials may be updated before each lecture. Please make sure that you download the latest version.

- First week slides, syllabus, and other materials:

  https://www.dropbox.com/scl/fo/29h9isqgpjpm9ch0lfjz9/AGbQHjNyeXL9otRcC17PLXQ?rlkey=b8f2vgpeucxu5ymvbx9w7kr8u&st=l3uos1am&dl=0

- GitHub repository of Jupyter notebooks used in lectures and PS (can be viewed online): https://github.com/suaybarslan/CMPE140
- For convenience: MyBinder link by Kaan Öztürk (thanks!) to the repository (you can modify and run the notebooks online with this link): https://mybinder.org/v2/gh/mkozturk/CMPE140/master