

R Programming

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Course Description

In this course you will learn how to program in R and how to use R for effective data analysis. You will learn how to install and configure software necessary for a statistical programming environment, discuss generic programming language concepts as they are implemented in a high-level statistical language. The course covers practical issues in statistical computing which includes programming in R, reading data into R, accessing R packages, writing R functions, debugging, and organizing and commenting R code. Topics in statistical data analysis and optimization will provide working examples.

Course Content

- Week 1: Overview of R, R data types and objects, reading and writing data
- Week 2: Control structures, functions, scoping rules, dates and times
- Week 3: Loop functions, debugging tools
- Week 4: Simulation, code profiling

Background lectures

Background lectures about the content of the course with respect to other quantitative courses, course logistics, and the R programming language are provided as reference material. It is not necessary to watch the videos to complete the course, however you may find them useful.

Course Textbook

The book *R Programming for Data Science* covers all of the lecture material in this course.

Assessments

Quizzes

- There are four weekly quizzes.
- You must earn a grade of at least 80% to pass a quiz.
- You may attempt each quiz up to 3 times in 8 hours.
- The score from your most successful attempt will count toward your final grade.

Programming Assignments

- There are **three required** programming assignments.
- You must earn a grade of at least 80% to pass a programming assignment

- Programming Assignments 1 and 3 are graded via unit tests using a submission script that compares the output of your functions to the correct output.
- Programming Assignment 2 is submitted differently and graded via a peer review.

swirl Programming Assignment (practice)

- In this course, you have the option to use the [swirl R package](#) to practice some of the concepts we cover in lectures.
- While these lessons will give you valuable practice and you are encouraged to complete as many as possible, please note that they are **completely optional** and you can get full marks in the class without completing them.

Grading Policy

You must score at least 80% on all required assignments (Quizzes & Programming Assignments) to pass the course. Your final grade will be calculated as follows:

- Week 1 Quiz - 20%
- Week 2 Quiz - 10%
- Week 3 Quiz - 5%
- Week 4 Quiz - 10%
- Programming Assignment 1 (Air Pollution) - 20%
- Programming Assignment 2 (Lexical Scoping) - 10%
- Programming Assignment 3 (Hospital Quality) - 25%
- swirl Programming Assignment (practice) - 0%

Anonymity

As part of this class you will be required to set up a [GitHub account](#). Github is a tool for collaborative code sharing and editing. During this course and other courses in the track you will be submitting links to files you publicly place in your Github account as part of peer evaluation. If you are concerned about preserving your anonymity you should set up an anonymous Github account and be careful not to include any information you do not want made available to peer evaluators.

Typos

- We are prone to a typo or two - please report them and we will try to update the notes accordingly.
- In some cases, the videos may still contain typos that have been fixed in the lecture notes. The lecture notes represent the most up-to-date version of the course material.

Differences of opinion

Please refrain from angry, sarcastic, or abusive comments on the message boards. Our goal is to create a supportive community that helps the learning of all students, from the most advanced to those who are just seeing this material for the first time.

Plagiarism

Johns Hopkins University defines plagiarism as "...taking for one's own use the words, ideas, concepts or data of another without proper attribution. Plagiarism includes both direct use or paraphrasing of the words, thoughts, or concepts of another without proper attribution." We take plagiarism very seriously, as does Johns Hopkins University.

We recognize that many students may not have a clear understanding of what plagiarism is or why it is wrong. Please see the following guide for more information on plagiarism:

[JHU Student Handbook on Referencing](#)

It is critically important that you give people/sources credit when you use their words or ideas. If you do not give proper credit -- particularly when quoting directly from a source -- you violate the trust of your fellow students.

The Coursera Honor code includes an explicit statement about plagiarism:

I will register for only one account. My answers to homework, quizzes and exams will be my own work (except for assignments that explicitly permit collaboration). I will not make solutions to homework, quizzes or exams available to anyone else. This includes both solutions written by me, as well as any official solutions provided by the course staff. I will not engage in any other activities that will dishonestly improve my results or dishonestly improve/hurt the results of others.

Reporting plagiarism on course projects

One of the criteria in the project rubric focuses on plagiarism. Keep in mind that some components of the projects will be very similar across terms and so answers that appear similar may be honest coincidences. However, we would appreciate if you do a basic check for obvious plagiarism and report it during your peer assessment phase.

It is currently very difficult to prove or disprove a charge of plagiarism in the MOOC peer assessment setting. We are not in a position to evaluate whether or not a submission actually constitutes plagiarism, and we will not be able to entertain appeals or to alter any grades that have been assigned through the peer evaluation system.

But if you take the time to report suspected plagiarism, this will help us to understand the extent of the problem and work with Coursera to address critical issues with the current system.