Introduction to R Programming Syllabus

Course Number: CSE41097
Section ID: 116264
Course Start Date: 6/20/2016
Course End Date: 8/21/2016

Instructor Information

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Welcome

Hello everyone! Thank you for your interest in Introduction to R Programming course.

R is an open-source software that is widely used by statistical programmers and statisticians, not only in academic fields but also across different industries. The growing interest in grasping R software has increased immensely in recent years because the up-to-date statistical methods, especially in the genomic field, can be frequently updated and accessed by researchers around the globe. The materials covered in this course will serve researchers in the fields of biostatistics, statistics, mathematics, and bioinformatics.

Course Purpose and Prerequisites

In this course, students will learn to write R programs that access data from multiple sources, generate output, manipulate different types of R objects that are based on programming objectives, perform character manipulation, generate statistical reports, create statistical graphics, and, most importantly, write flexible R functions by using different types of control structures.

There is no prerequisite for taking this course. However, knowledge of one programming language other than R or a half-year experience programming in R will be beneficial for grasping the course materials during the first couple of lectures.

Course Goal and Objectives

By the end of this course, the students should feel comfortable with writing programs to create functions by using the R language. Your newly-learnt abilities in R may satisfy the programming requirements for doing academic research or a statistical programmer across different types of industries.

Course Materials

A course reader that is written by the course instructor (Arthur Li)

To purchase the textbook, please follow the instructions below:
Step 1: Log on to https://students.universityreaders.com/store/.
Step 2: Create an account or log in if you have an existing account to purchase.
Step 3: Choose the correct course pack, select a format and proceed with the checkout process.

Course Overview

The materials in this course are grouped into the following chapters:

Required components:

Chapter 1: Introduction to R
Chapter 2: Vectors, Matrices, and Arrays
Chapter 3: Lists and Data Frame
Chapter 4: Subsetting Objects
Chapter 5: Introduction to R Functions
Chapter 6: Data Input and Output
Chapter 7: Data Manipulations
Chapter 8: Data Aggregation

Optional topics:

Chapter 9: Writing User-Defined Functions
Chapter 10: Character Manipulations
Chapter 11: Graphics in R

Online Course Structure

The course is organized using the course menu (left side of your screen):

Announcements	This is the first page you see upon entering your course. Your instructor will post weekly announcements and reminders here.
Syllabus	Contains the course outline, learning objectives, weekly assignments and course details.
Lessons	If it's a fully online course, this section will have the instructor's weekly audio/image lectures. The lectures are self-paced and can be replayed like a video movie (start, pause, rewind, etc.).
Discussion Board	Questions pertaining to each lesson are posted weekly for you and your classmates to discuss and answer.
Assignments	Assignments, quizzes, Course Evaluation, and the Final Exam are available here.
Contacts	Instructor, student services and online learning support contact information is listed here.

Course Schedule

Date	Topic	Assignments Assigned	Assignments Due	Points
6/20	Introduction to R (Ch 1)			
6/27	Vectors, Matrices, Arrays (Ch 2)			
7/04	Lists and Data Frame (Ch 3) Subsetting Objects (Ch 4)			
7/11	R Functions (Ch 5)	Assignment 1		30
7/18	Data Input and Output (Ch 6) Data Manipulations – I (Ch 7)		Assignment 1	
7/25	Data Manipulations - II (Ch 7)			
8/01	Data Aggregation - I (Ch 8)	Assignment 2		30
8/08	Data Aggregation - II (Ch 8)		Assignment 2	
8/15		Assignment 3		
8/22			Assignment 3	40
				100

Requirements

In order to satisfy course requirements, class participants must participate in discussions, complete all course assignments on time (on or before the due date), and use graduate level writing/presentation for all written assignments.
IMPORTANT! Late assignments (anything posted or sent after the due date) will not be accepted unless due to a verifiable medical or family emergency. Late assignments will be accepted at the discretion of the instructor and cannot be accepted more than 1 week late.

Review Problems

At the end of most of the chapters in the course reader, there is a section of review problems, such as Chapters 2-5, 7 and 8. Please make sure to do these practice problems after you read the course notes, especially before you do the assignment. The answers of the review problems can be found at the end of the course reader.

Assignments

Most of the assignment questions require you to write R codes. There are total of three assignments. You will receive clear instructions for writing each assignment. You will have one week to complete each of the assignments.

Assignment #1—30 points
This assignment will be based on the materials from Chapter1 – Chapter4.

Assignment #2—30 points
This assignment will be based on the materials from Chapter5 – Chapter7.

Assignment #3—40 points
This assignment is comprehensive. It will be based on the materials from Chapter1 – Chapter8.

Discussion Board and Extra Credit

Since this is an online course, discussions relating to lectures need to be posted to the discussion board. For each lecture, I will create a discussion forum relating to the current lecture. Instead of emailing me your questions relating to lectures, you need to post your question(s) on the discussion board. I will provide my feedback within 24 hours, **excluding Sundays**.

Students who know the solution are welcome to provide the answers as well. The first student who provides the correct solution before I provide my feedback will receive 1 point extra credit.

I will also provide a discussion forum for each assignment. You can only ask questions for clarification purposes. That is to say, you can't ask questions about how to answer a specific question.

Emails

You can email me administrative questions, such as submitting late assignments due to family emergencies, etc. Questions that are related to the course materials need to be posted on the discussion board. Lastly, please do not email me to check whether your assignment solution is correct before you submit it.

Grades

Grades are based on points and the letter grades are given as follows:

A+	97-100
A	94-96
A-	90-93
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D+	67-69
D	65-66
F	0-64

Student Resources

On any Blackboard screen, there are tabs across the top and one is called the Student Tab. There is information on how to get started as a student and who to contact if you encounter any problems. There are also videos and written instructions on how to do some of the most common things in Blackboard.

Another one of these tabs is called FAQ (Frequently Asked Questions). If you click on the Students Category (on the left), you can find step-by-step directions for everything from sending email to uploading your assignments to posting a reply on the discussion board.

Code of Conduct

All participants in a course at UC San Diego Extension are bound by the University of California Code of Conduct, found at:
http://www.ucop.edu/ucophome/coordrev/ucpolicies/aos/uc100.html.

Academic Honesty Policy

The University is an institution of learning, research, and scholarship predicated on the existence of an environment of honesty and integrity. As members of the academic community, faculty, students, and administrative officials share responsibility for maintaining this environment. It is essential that all members of the academic community subscribe to the ideal of academic honesty and integrity and accept individual responsibility for their work. Academic dishonesty is unacceptable and will not be tolerated at the University of California. Cheating, forgery, dishonest conduct, plagiarism, and collusion in dishonest activities erode the University's educational, research, and social roles.

If students who knowingly or intentionally conduct or help another student perform dishonest conduct, acts of cheating, or plagiarism will be subject to disciplinary action at the discretion of UC San Diego Extension.