



SANTA CLARA UNIVERSITY

LEAVEY SCHOOL OF BUSINESS

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## OMIS 2389/MSIS 2506 – R Programming

Winter 2019

Tuesday 3PM

Instructor: Denis Vrdoljak

Office: Lucas Hall 216ZZ

Office Hours: Wednesday 5:30PM-6:30PM, and by appointment

Email: [dvrdojak@scu.edu](mailto:dvrdojak@scu.edu)

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### Overview

Students will learn to manipulate and visualize data using the R programming language. Data manipulation includes importing/exporting data from any source, cleaning, merging, transforming, and reshaping datasets, generating variables using existing data as well as through simulation, and developing programs to generate custom functions that are not available in existing packages. Data visualization includes generating descriptive statistics, tables, graphs, and maps, as well as improving graphs by manipulating plot parameters.

### Logistics

Class times: Tuesday | Thursday 7:35 PM - 9:10 PM

Location: Lucas 310

Instructor: Denis Vrdoljak ([dvrdojak@scu.edu](mailto:dvrdojak@scu.edu))

Office hour times: Wednesday 5:30 PM - 6:30 PM, and by appointment

Office hour location: Lucas Hall 216ZZ

Teaching Assistant: Robinson Lu

Lab office hour time: TBD, check Camino

Lab office hour location: TBD, check Camino

Course Objectives:

## Learning Objectives

Upon successfully completing this course, students will:

- Understand the basics of the R language
- Be able to ingest data from multiple sources
- Be able to manipulate data to prepare it for analysis
- Be able to plot and visualize data
- Understand how to create R functions
- Know how to create R libraries
- Be able to perform basic statistics and exploratory data analysis in R
- Be able to present a complex data analysis in an R or Jupyter notebook
- Be able to create an interactive R Shiny application

## Required Textbooks

*R Programming Fundamentals: Deal with data using various modeling techniques*

by Kaelen Medeiros

ISBN-10: 1789612993

ISBN-13: 978-1789612998

<https://www.amazon.com/gp/product/1789612993>

*R for Data Science: Import, Tidy, Transform, Visualize, and Model Data 1st Edition*

by Hadley Wickham, Garrett Golemund

ISBN-13: 978-1491910399

ISBN-10: 1491910399

<https://www.amazon.com/gp/product/1491910399>

## Course Websites

I will share lecture slides and code on GitHub:

[https://github.com/denisvrdoljak/MSIS2506\\_Fall2019](https://github.com/denisvrdoljak/MSIS2506_Fall2019)

Students will submit assignments on Camino. Assignment due dates will be posted in Camino, along key announcements *Please visit Camino daily to make sure you don't miss anything.*







### **Tentative Schedule**

<b>Week</b>	<b>Assigned</b>	<b>Due</b>
<b>Week 1</b>	<b>Project 1 Assigned</b>	
<b>Week 2</b>		
<b>Week 3</b>	<b>Project 2 Assigned</b>	<b>Project 1 Due</b>
<b>Week 4</b>		
<b>Week 5</b>		<b>Project 2 Due</b>
<b>Week 6</b>	<b>Project 3 Assigned</b>	<b>MIDTERM</b>
<b>Week 7</b>		
<b>Week 8</b>	<b>Final Project Assigned</b>	<b>Project 3 Due</b>
<b>Week 9</b>		
<b>Week 10</b>		
<b>Finals Week</b>		<b>Final Project Due</b>

## Grading

- **Class Participation & Labs: 10%**
- **Project 1: 10%**
- **Project 2: 15%**
- **Mid-Term: 20%**
- **Project 3: 15%**
- **Project 4 (Final Project): 30%**


## Software

 is a very powerful open-source program increasingly used by researchers and analysts in academia and the private sector. The free open source -environment for Windows, Linux, and Apple computers can be found at [www.R-project.org/](http://www.R-project.org/). A basic menu system, helpful for introductory statistics classes, is the RCMDR library, which can be linked to . A free open source development shell is available through the -Studio at [www.rstudio.com/](http://www.rstudio.com/). For those who are not familiar with , here are some useful resources for good  tutorial:

- [Beginner's guide to R: Introduction](#)
- [R Tutorial](#)

Students who do not have any experience on  are required to complete these two tutorials before the first lab session!!!

## Hardware

All students must have a laptop with  pre-loaded so as to be able to use it in class and for assignments.

## Academic Integrity

The Leavey School of Business is committed to academic excellence and integrity. Students are expected to do their own work and to cite any sources they use. A student (or a group) who is guilty of a dishonest act in an examination, paper, or other work required for a course, or who assists others in such an act, may, at the discretion of the instructor, receive a grade of F for the course. In addition, a student found guilty of a dishonest act may be subject to sanctions, up to and including dismissal from the University, as a result of the student judicial process as described in the Graduate Business Programs Bulletin. A student who violates copyright laws, including those covering the copying of software programs, or who

knowingly alters official academic records from this or any other institution is subject to similar disciplinary action.

**Disabilities resources:**

If you have a disability for which accommodations may be required in this class, please contact Disabilities Resources, Benson 216, [www.scu.edu/disabilities](http://www.scu.edu/disabilities), as soon as possible to discuss your needs and register for accommodations with the University. If you have already arranged accommodations through Disabilities Resources, please discuss them with me during office hours. Students who have medical needs related to pregnancy or parenting may be eligible for accommodations.

While I am happy to assist you, I am unable to provide accommodations until I have received verification from Disabilities Resources. The Disabilities Resources office will work with students and faculty to arrange proctored exams for students whose accommodations include double time for exams and/or assisted technology. (Students with approved accommodations of time-and-a-half should talk with me as soon as possible). Disabilities Resources must be contacted in advance to schedule proctored examinations or to arrange other accommodations. The Disabilities Resources office would be grateful for advance notice of at least two weeks. For more information, you may contact Disabilities Resources at 408-554-4109.