THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF MATHEMATICAL SCIENCES

Course #: STAT 4329 + 5329
Course Title: Statistical Programming
Credit Hrs: 3
Term: Summer 2020
Course Meetings & Location: Online
Prerequisite Courses: Department Approval Required
Course Fee: (if applicable) NA
Instructor: Youngjoo Cho
Office Location: Bell Hall 211
Contact Info: 744-6856 ycho@utep.edu 744-6502 # Phone number
E-mail address Fax #
Office Hrs: By appointment
Textbook(s), Materials: Required: none
Suggested: The Art of R Programming, Matloff
Ronald P. Cody & Jeffrey K. Smith

Course Objectives (Learning Outcomes):
Introduces students to the principles and concepts of programming in R and SAS studio. Students will be able to manipulate data, create summary reports and lists, edit and interactively debug code, manage complex data sets, transform and generate data, create effective graphics for data visualization, create user-defined functions and handle various data formats in R and SAS studio.

Course Activities/Assignments:
Each week will require one or two lab works completed by the end of the week. Additionally, weekly assignments are given. A midterm exam for R and final project by R or SAS studio will also be administered during the semester.

There will be a mid-term exam and final project. Lab works are graded for completeness only.
Course Schedule: Week 1: R Intro, help and packages, vectorized calculations, matrices and arrays, lists and data frames, programming structures
Week 2: simulations and efficient programming, permuting and bootstrapping, creating R functions, MIDTERM EXAM (take home)
Week 3: SAS Introduction: basics, variables, and operators, data and proc steps and data visualization,
Week 4: Regression, regression diagnostics, analysis of variance
Week 5: FINAL Project

Grading Policy: 20% Lab assignments
20% Midterm Exam
20% Final Project
40% Homework Assignments (about 4-5)

Make-up Policy: If the class is missed for a valid and documented reason, the lab assignments may be made-up for full credit. All other assignments must be turned in on time.

Attendance Policy: You are expected to attend class so that you may turn in the in-class assignments and homework assignments.

Academic Integrity Policy: Please see http://academics.utep.edu/Default.aspx?tabid=23785

Civility Statement: This is a class where participation is required. You will be seated in front of a computer all class period and you are expected to follow the lecture/discussion and at various times complete in-class assignments. You are not to browse the internet during class time or work on any other material. If you regularly do not complete in-class assignments in a satisfactory manner, participate in class, or if you work on other material in class you will have points deducted from your in-class assignments portion of your grade.

Disability Statement: If a student has or suspects she/he has a disability and needs an accommodation, he/she should contact the Disabled Student Services Office (DSSO) at 747-5148 or at <dss@utep.edu> or go to Room 106 Union East Building. The student is responsible for presenting to the instructor any DSS accommodation letters and instructions.
Military Statement: If you are a military student with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact me as soon as possible.

UTEP College of Science Policies: The UTEP Summer 2020 drop deadline is June 26, 2020. The College of Science will remain aligned with the University and not approve any drop requests after that date.

All grades of Incomplete must be accompanied by an Incomplete Contract that has been signed by the instructor of record, student, departmental chair, and the dean. Although UTEP will allow a maximum of one year to complete this contract, the College of Science requests it be limited to month based upon completion data. A grade of Incomplete is only used in extraordinary circumstances confined to a limited event such as a missed exam, project, or lab. If the student has missed a significant amount of work (e.g. multiple assignments or tasks), a grade of Incomplete is not appropriate or warranted.
<table>
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<tr>
<th>Criterion</th>
<th>Approx. % of Grade</th>
<th>Excellent (100%)</th>
<th>Adequate (80%)</th>
<th>Poor (60%)</th>
<th>Not Met (0%)</th>
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<tbody>
<tr>
<td>Program Specifications / Correctness</td>
<td>50%*</td>
<td>No errors, program always works correctly and meets the specification(s).</td>
<td>Minor details of the program specification are violated, program functions</td>
<td>Significant details of the specification are violated, program often</td>
<td>Program only functions correctly in very limited cases or not at all.</td>
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<td>incorrectly for some inputs.</td>
<td>exhibits incorrect behavior.</td>
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<td>Readability</td>
<td>20%</td>
<td>Code is clean, understandable, and well-organized.</td>
<td>Minor issues with consistent indentation, use of whitespace, variable naming,</td>
<td>At least one major issue with indentation, whitespace, variable names,</td>
<td>Major problems with at three or four of the readability subcategories.</td>
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<td>or general organization.</td>
<td>or organization.</td>
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<td>Documentation</td>
<td>5%</td>
<td>Code is well-commented.</td>
<td>One or two places that could benefit from comments are missing them or the</td>
<td>File header missing, complicated lines or sections of code uncommented or</td>
<td>No file header or comments present.</td>
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<td>code is overly commented</td>
<td>lacking meaningful comments.</td>
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<td>Code Efficiency</td>
<td>20%</td>
<td>Code uses the best approach in every case.</td>
<td>Code uses poorly-chosen approaches (though correct in result) in at least one</td>
<td>Code uses poorly-chosen approaches (though correct in result) in at least</td>
<td>Many things in the code could have been accomplished in an easier, faster,</td>
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<td>place.</td>
<td>two places.</td>
<td>or otherwise better fashion.</td>
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<td>Assignment Specifications</td>
<td>5%</td>
<td>No errors</td>
<td>Minor details of the assignment specification are violated, such as files</td>
<td>Minor details of the assignment specification are violated, such as files</td>
<td>Significant details of the specification are violated, such as extra</td>
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<td>named incorrectly or extra instructions slightly misunderstood.</td>
<td>named incorrectly or extra instructions significantly misunderstood.</td>
<td>instructions ignored or entirely misunderstood.</td>
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