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

Course #:	STAT 5329/STAT 4329 (CRN 19891)
Course Title:	Statistical Programming
Credit Hrs:	3.0
Term:	Fall 2020
Course Meetings & Location:	Online class
	Live Zoom meetings: MW 3:00 pm – 4:20 pm
	(Recorded videos will be provided on Blackboard)
Prerequisite Courses:	Departmental approval required
Course Fee:	N/A
Instructor/TA:	Dr. Michael Pokojovy / NN
Office Location:	Bell Hall 227
Contact Info:	Phone: (915) 747-6761
	E-mail address: mpokojovy@utep.edu
	Fax # 915-747-6502 (Math Department)
	Emergency Contact: 915-747-5761 (Math Department)
Virtual Office Hrs:	Instructor: W 2-3 pm, TA: TBA
Textbook(s), Materials:	Required: None
	Recommended: 1) N. Matloff (2011). The Art of R Programming https://nostarch.com/artofr.htm
	2) E. Matthes (2019). Python Crash Course, 2nd ed. https://nostarch.com/pythoncrashcourse2e
	3) H. P. Langtangen (2012). A Primer on Scientific Programming with Python 3rd ed. https://hplgit.github.io/primer.html/doc/pub/half/book.pdf
Course Description and Learning Outcomes:	This course will introduce students to the principles and concepts of programming in R and Python. 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, handle various data formats, and learn the fundamentals of resampling methods in R and Python.
Course Activities/Assignments:	This is an online class. Homework (including labs and/or projects) will be regularly assigned. There will one midterm and one final exam.
Assessment of Course Objectives:	*Midterm Exam:* One midterm exam (on R) will be given. *Homework:* Homework (including labs and/or projects) will be regularly assigned. *Final Exam:* The final exam will focus on Python.
	NO LATE COURSEWORK WILL BE ACCEPTED, EXCEPT FOR EXTREME SCENARIOS AS DEEMED BY THE INSTRUCTOR.

Course Schedule:	• Duration: 8/24/2020 – 12/3/2020 • Midterm exam: Wed, 10/7/2020 • Final exam: Mon, 12/7/2020 • Course drop deadline: Fri, 10/30/2020 (No "W" will be assigned for dropping the course after the deadline!)

Tentative Outline:
Week 1: R Intro, help and packages
Week 2: Vectorized calculations, matrices and arrays
Week 3: Lists and data frames, programming structures
Week 4: Simulations and efficient programming
Week 5: Permuting and bootstrapping
Week 6: Creating R functions (packages)
Week 7: Final topics
Week 8: Python Introduction: basics, variables, and operators
Week 9: Loops and conditionals
Week 10: Functions and Data Visualization
Week 11: Lists, Strings and Tools for Statistical Modeling
Week 12: Stings and Control flow
Week 13: File I/O and Modules
Week 14: Analysis of algorithms

Class Recordings:	The use of recordings will enable you to have access to class lectures, group discussions, and so on in the event you miss a synchronous or in-person class meeting due to illness or other extenuating circumstance. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP's acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. You may not share recordings outside of this course. Doing so may result in disciplinary action.
Grading Policy:	*Homework*: 40% *Midterm exam*: 30% *Final exam*: 30% The usual grading scale will be used for this course (90–100% = A, 80–89% = B, 70–79% = C, 60–69% = D, 0–59% = F). Academic performance in this class will be the only factor used in determining the course grade. No extra credit work will be available to improve on any grade.
Make-up Policy:	Make-up tests will only be given under extraordinary circumstances (as determined by the instructor) which must be reported to the instructor and documented (if requested) prior to the exam. The will be no make-up exams.

Attendance Policy:	This is an online class. Students are strongly encouraged to attend all online meetings and participate in all activities. It is also important to read the textbooks and work through the examples/programs given in the textbooks and the class. Failure to accomplish the above – at minimum – will almost invariably ensure a less than satisfactory grade for this course.
Scholastic Integrity Policy:	Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.
Technology Requirements	Course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. You will need to have access to a computer/laptop, scanner, a webcam and a microphone. IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk as they are trained specifically in assisting with technological needs of students. The instructor and the TA are _not_ responsible for this sort of assistance!
Copyright Statement for Course Materials:	All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.
Netiquette:	Communication online can be challenging. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action. - Always consider audience. This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas. - Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.

- When reacting to someone else's message, address the ideas, not the person.
- Blackboard is *not* a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and instructor only. Please do not copy documents and paste them to a publicly accessible website, blog and/or other space.

Disability Statement and Accommodations Policy	The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University.Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at cass@utep.edu, or apply for accommodations online via the CASS portal.
COVID-19 Accommodations	Students are not permitted on campus when they have a positive COVID-19 test, exposure or symptoms. If you are not permitted on campus, you should contact the instructor as soon as possible so we can arrange necessary and appropriate accommodations.
Resources:	UTEP provides a variety of student services and support: Technology Resources - Help Desk: Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus. Academic Resources - UTEP Library: Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students. - Math Tutoring Center (MaRCS): Ask a tutor for help and explore other available math resources.

Individual Resources
- Military Student Success Center: Assists personnel in any branch of service to reach their educational goals.
- Center for Accommodations and Support Services: Assists students with ADA-related accommodations for coursework, housing, and internships.

Last updated: 8/17/2020

Disclaimer: This syllabus may be subject to changes if these are deemed necessary by the instructor. Despite all efforts, this syllabus may contain typos and errors.

Attachment: Program Grading Policy

Criterion	Approx. % of Grade	Excellent (100%)	Adequate (80%)	Poor (60%)	Not Met (0%)
Program Specifications / Correctness	50%*	No errors, program always works correctly and meets the specification(s).	Minor details of the program specification are violated, program functions incorrectly for some inputs.	Significant details of the specification are violated, program often exhibits incorrect behavior.	Program only functions correctly in very limited cases or not at all.
Readability	20%	Code is clean, understandable, and well-organized.	Minor issues with consistent indentation, use of whitespace, variable naming, or general organization.	At least one major issue with indentation, whitespace, variable names, or organization.	Major problems with at three or four of the readability subcategories.
Documentation	5%	Code is well-commented.	One or two places that could benefit from comments are missing them **or** the code is o*verly* commented	File header missing, complicated lines or sections of code uncommented or lacking meaningful comments.	No file header or comments present.
Code Efficiency	20%	Code uses the best approach in every case.	Code uses poorly-chosen approaches (though correct in result) in at least one place.	Code uses poorly-chosen approaches (though correct in result) in at least two places.	Many things in the code could have been accomplished in an easier, faster, or otherwise better fashion.
Assignment Specifications	5%	No errors	Minor details of the assignment specification are violated, such as files named incorrectly or extra instructions slightly misunderstood.	Minor details of the assignment specification are violated, such as files named incorrectly or extra instructions significantly misunderstood.	Significant details of the specification are violated, such as extra instructions ignored or entirely misunderstood.