

XLS CS 3753 & 5163 Introduction to Data Science

Course Syllabus – Spring 2021

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Course Syllabus – Spring 2021

All classes are conducted online in Spring. Many classes are in an asynchronous format or hybrid format. This course is cross listed with CS 3753 section 001 and CS 5163 section 001. This class is in a hybrid format (including asynchronous and live sessions). There is no live lecture in this format.

All lectures are recorded offline and posted weekly. We meet once a week in each class section. The meetings are live sessions. These meeting will occur on the following days/times:

Meeting times: Monday 2:00 – 2:50 pm (Live Sessions in Blackboard Collaborate)

In general, we discuss any questions in lecture videos, assignments, and exams during meetings. We understand the difficulties during COVID-19, the attendance of meetings will be weighted less in your final grade. But I strongly recommend you attend them as many as possible. You will know the important news, common problems and issues we discussed in the meetings. We also can discuss any questions during my office hours in Discord.

Final exam: Wednesday, May 12, 1:00 – 2:50 pm

The quizzes and exams will be conducted in Blackboard and Proctorio synchronously. You will see the detailed information in the review of exams.

Public Health Considerations – Spring 2021

The health and safety of our campus community is a shared responsibility of all Roadrunners. It is important to note that none of us can guarantee a COVID-19-free environment. We all must, however, follow the guidelines outlined in the [UTSA Public Health Task Force Report](#) (“Report”), and any other applicable policies as may be communicated by the University from time to time. This will include regulating behaviors outlined in the Report including face coverings, daily symptom checks and other appropriate public health behaviors associated with a shared responsibility of reducing transmission of COVID-19. Students, staff and faculty must complete a [mandatory compliance training module](#) and self-monitor for COVID-19 symptoms using the [UTSA Health Self-Assessment tool](#) before coming to campus (Refer to [UTSA's Coronavirus website](#), the UTSA mobile app, and the LiveSafe app). In addition, students, staff and faculty must get tested if you are showing COVID-19 symptoms and communicate any COVID-19 related health concerns to your supervisor or professor. Failure to abide by these guidelines and requirements may result in disciplinary action in accordance with the student code of conduct or applicable employment policies and procedures. Violations should be reported to the Office of Institutional Compliance via the [UTSA Hotline](#) for appropriate action.

For Face To Face Classroom and Other Academic Sessions

All members of the UTSA community are required to wear face coverings while on campus (unless in an enclosed office alone, or outdoors where six feet of social distancing is possible, or as otherwise stated below). Face coverings are required for all students while in class—regardless of the size of the class, the number of students present, or even if other students state they are comfortable if someone isn’t masked. If students do not have a face covering when they come to class, they may be asked to leave. If a student has a medical reason that would prevent him/her from wearing a face covering in an academic setting, accommodations can be assessed through [Student Disability Services](#).

Additional Faculty Responsibilities

It may be acceptable for faculty to remove face coverings during lectures where a separation of a minimum of six feet can be maintained. Face shields will be made available for special needs and situations. In case contact tracing becomes necessary, faculty will maintain attendance records for all face to face classroom and other academic sessions. Faculty are expected to address students who are not following the above-mentioned procedures while in the classroom. If a student refuses to comply, the faculty must ask the student to leave the classroom and inform the student that he/she cannot return to class until he/she has a face covering on or complies with any other applicable procedure, and must document the incident. If there is any subsequent violation by such student, the faculty member must ask the student to leave the classroom and refer the incident to [Student Conduct and Community Standards](#). The escalation process will follow normal university guidelines through the [Student Code of Conduct](#).

Contact Information

Instructor Name: Qi Lu, Computer Science

Office Location: Virtual office hours via Discord

Office Hours: M/R 10:30 – 12:00 pm in Discord or by appointment

Phone Numbers: 210-458-8734

Email Addresses: qi.lu@utsa.edu

Grader: Almajed, Abdalwahab

Email Addresses: abdalwahab.almajed@my.utsa.edu

Note: Refer to the [Student Resources section](#) of this syllabus for technical support, Student Disability Services accommodations, academic support and other resources. Contact the instructor ASAP if you are in need of additional resources to be successful in this course.

Social Media/Alternative Communication Platform: I do not allow alternative platforms for my courses as I do not communicate sensitive or private student information on these platforms.

Communication Plan

There are several ways you can communicate with the instructor during this online course:

1. Send a message to the instructor or graders through Discord.
2. Email the instructor directly at one of the addresses listed above from your own email account. Keep in mind, however, that the instructor cannot communicate about grades through email.
3. Use the “Send Email” tool on Blackboard. This has the same result as sending a direct email, but it comes from Blackboard instead of your personal email account.
4. For emergency like exam sessions, the instructor can be reached via text at Discord or mobile phone 505-5048796.

5. If you have any comments or concerns about this course, please contact cs@utsa.edu

The instructor will generally respond to all messages within 24 hours. Office hours will be offered virtually in Discord or Blackboard Collaborate, and hours will be announced during the first week of class.

Course Description

This course covers the fundamentals of data science, e.g. data collection, preprocessing and transformation, visualization, and exploratory analysis, and the mathematical and statistical data modeling, as well as introductions to data mining and machine learning algorithms. Credit hours: 3

Prerequisites/co-requisites: This course is primarily designed for graduate and advanced undergraduate students in Computer Science. The prerequisite courses are CS3424 Systems Programming and CS3333 Math Foundation of CS. Fundamental understanding of algorithms, Python programming, probability and statistics are expected.

Course Objectives

The objective is to train the next generation workforce of data analysts and data scientists.

- Students will develop programming skills in Data Science related topics.
- Students will demonstrate proficiency with visualization of data.
- Students will demonstrate proficiency with statistical analysis of data.
- Students will develop the ability to build and assess data-based models.
- Students will apply data science concepts and methods to solve real-world problems.

Course Format

This course will be taught as a **hybrid**, meaning although most course content will be available asynchronously, there will also be synchronous, or live, sessions online that will be part of your grade. Synchronous sessions will take place on Blackboard.

Course Navigation Instructions

When you log in to Blackboard you will arrive at the “**Announcements**” page. Use the course menu to go to other locations in the course. Blackboard course links will open in the current window or tab. Files and other external web links will open in a new window or tab. You can access support services from the Blackboard course menu as well. This course is arranged by weekly topics. Materials are in the “**Content**” menu on Blackboard.

Course Materials

Recommended Textbook

- [PDA] Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython by William McKinney. <http://shop.oreilly.com/product/0636920023784.do>



① REQUIRED

Python for Data Analysis**\$24.00 to \$59.99**

Edition: 2nd

ISBN: 9781491957660

Author: McKinney

Publisher: O'Reilly Media, Incorporated

Formats: PAPERBACK, BryteWave Format

Copyright Year: 2017

RentUsed ⓘ **\$24.00**

Due 12/14/20

New **\$44.99**

Due 12/14/20

BuyUsed ⓘ **\$45.00**New **\$59.99**Digital ⓘ **\$50.98**[Requirements](#)

- [DSS] Data Science from Scratch: First Principles with Python by Joel Grus



① REQUIRED

Data Science from Scratch**\$16.00 to \$39.99**

ISBN: 9781491901427

Author: Grus

Publisher: O'Reilly Media, Incorporated

Formats: PAPERBACK

Copyright Year: 2015

RentUsed ⓘ **\$16.00**

Due 12/14/20

BuyUsed ⓘ **\$30.00**New **\$39.99**

- [TS] Think Stats: Probability and Statistics for Programmers by Allen Downey.
<http://greenteapress.com/thinkstats/>

Optional

- Python Data Science Handbook: Essential Tools for Working with Data by Jake VanderPlas
<http://shop.oreilly.com/product/0636920034919.do>

Technology Requirements and Support

- Basic computer skills.
- Computer with speakers/earbuds/headphones. The web camera is optional. You can use your own personal device (laptop or desktop). If you need to borrow a device, contact the Tech Café (see contact information below) to inquire about checking out a laptop for the semester.
- For more information on accessing desktop computers on campus in the labs and the library, visit the UTSA [Student Connect Computer Lab](#) information page.
- Internet access. Wired or reliable connection recommended for online exams and assignments.
- Google Chrome is the recommended browser. Issues may happen if using Internet Explorer or Safari, especially with Blackboard Collaborate and Proctorio. *In case you are having trouble opening or accessing content, clear the cache and try a different browser.* You can run the [Blackboard Browser Checker](#).
- Access to the Microsoft Office suite and Adobe Creative Cloud suite. These tools are provided free of charge to UTSA students and you can learn more about this software, including instructions on how to access these programs by visiting the [Digital Tool Resources page](#).
- Review the [Blackboard Self Help Portal](#).
- Review the [Minimum Technical Requirements for Online Learning](#) page

If you have a problem with Blackboard and you have already **cleared the cache** and tried with a **different browser**, please submit a ticket to University Technology Solutions (UTS) Tech Café. Be ready with your course

ID and section. A screenshot of the issue will accelerate the troubleshooting process. Always notify the instructor about the issue you are encountering.

University Technology Solutions (UTS) Contact Information

- Email UTS Tech Café at techcafe@utsa.edu
- Call UTS Tech Café at 210.458.5555
- Visit the UTS [Tech Café](#) page

Grading Information

Final grades will be based on earning the following points out of a possible 100. Extra credit opportunities are provided in some assignments and exams.

Grading Schema

Activity	Percentage
Attendance of meetings	5%
Homework Assignments	30%
In-Class Quizzes	20%
Midterm Exam	20%
Final Exam	25%
Total Values	100%

Table 1. A breakdown of number percentages for each type of activity.

Grading Scale

Final grades will be based on the following grading scale:

Total Points	Grade
≥ 100 & 3%	A+
93 – 99	A
87 – 92	A-
83 – 86	B
80 – 82	B-

77 – 79	C+
73 – 76	C
70 – 72	C-
67 – 69	D+
63 – 66	D
60 – 62	D-
< 60	F

Table 2. A breakdown of letter grades by earned points.

Assignments & Assessments

Homework

Homework assignments are graded activities that will help you practice with different scenarios related to the topics covered in each topic. In homework 5 & 6, you will collaborate with up to three members in a team (please check the instruction in the specific homework).

Please use Python 3.x (x can be any numbers) for your homework. I recommend you install Anaconda (<https://www.anaconda.com/products/individual>). It includes all packages for Data Science. It provides Jupyter Notebook and Spyder. Jupyter Notebook will display your code and results at the same page. The code will be saved in an ipynb file. Spider is a regular IDE. The code will be saved in a .py python file.

Quizzes

There are 2 quizzes in this course. They are closed book in class quizzes. They are conducted in meeting times. The details will be announced in the quiz reviews. Make sure you complete each one.

Exams

The exams consist of various questions focused on key elements you should have learned throughout the course. There are one closed book midterm and final exams.

Note: Since it takes time to write mathematical formulas in Proctorio, I will provide you PDF and Word files for some quizzes and exams. There are two options:

- Edit the Word file directly, convert it to a PDF file, and submit it.
- Write down your name, abc123, question numbers, and solution on blank papers. Scan the papers and submit the PDF or images (e.g. jpg). If you do not have a scanner, you can use your mobile phone to take pictures or scan it using some apps, e.g. Adobe Scan. Make sure your solution is clear and neat.

Please do not copy solutions from Internet or your classmates. If I identify any plagiarism, you will be punished. Please refer to the plagiarism policy in the syllabus.

Course Expectations & Policies

Announcements

All information you need for this course will be posted in Blackboard in the syllabus or schedule, or as an assignment, item, or announcement. It is your responsibility to check in and participate every week in the course and complete all listed activities and assignments. It is recommended that you check announcements on a daily basis.

Submission of Coursework

All assignments are due at **11:59 pm** on the designated day unless otherwise noted. All assignments will be submitted online through the UTSA Blackboard course site on or before the specified due date and submitted to the location designated in the assignment description. Make sure you save your assignment somewhere that you can easily retrieve it later (e.g. on a travel drive, your personal computer, email, etc.). If something goes wrong with your submission, you will want to be able to retrieve your assignment for resubmission. Always notify the instructor about any issues you encounter.

Also, you will be surprised at how many assignments you will refer back to later in your college career. I suggest you save all of your assignments until well after you graduate. Some employers ask for examples of college work as part of the interview/selection process. Trust me, you won't be sorry. Be aware that Blackboard goes down occasionally for maintenance and you cannot get on the Blackboard system or send documents during those times. It is always a good idea to submit assignments early to account for times the Blackboard system might be down.

Quality of Work

All work must be of professional quality, neatly presented, grammatically correct, and free of spelling and punctuation errors.

Grading and Feedback

To view your grades on Blackboard, click on the "Grades" tab on the sidebar menu of our course in Blackboard. If additional feedback has been included with your grade, a speech-bubble icon will appear next to your grade. Clicking on this icon will open an additional window on your screen providing you with feedback.

Video and audio recording

The instructor may record meetings of this course. Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless Student Disability Services has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Student Disability Service accommodation. If the instructor or a UTSA office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. For more information on your privacy and class recordings, review [Student](#)

[Privacy \(FERPA\) in Virtual Classrooms and Other Educational Recordings](#) and the [Guide to Secure Video Conferencing Tools](#).

Course Evaluation

The instructor uses the feedback provided by their students in course evaluations to improve their teaching. Additionally, course evaluations are a strategy used by the university as one factor in evaluating an instructor's effectiveness. As a faculty member, the instructor encourages you to complete the course evaluation during the availability period later in the semester so that they can make improvements for the next group of students.

Late Work

Late work is allowed under University Allowed Circumstances and with prior approval from the instructor. Since it is online teaching, students have difficulties. We accept two days late submissions. For exams and quizzes, we accept 10 mins late submissions. All these late works are deducted 15% of the full points.

Make-up exams

Make-up exams are given only under certain extenuating circumstances (e.g. medical issues, emergency). Make-up exams are generally more difficult than the regular exams.

Plagiarism Policy

You will be warned and deducted the total points of the question in the current homework or exam at the first time. Then, you will lose all points in any future assignments.

Extra Credit

There are extra credit opportunities in many assignments, quizzes, and exams in this course.

Incompletes

Course incompletes will be given only in extreme cases. If you feel you have extenuating circumstances that warrant an incomplete for the course, contact the instructor as soon as possible.

Interpersonal Interactions and Online Netiquette

We will discuss ideas and topics in class that you may not agree with. It is also possible you will present ideas and topics in class that others will not agree with. It is vital that we respect the opinions of others and behave in a civilized manner during classroom discussions, whether online or in person. To that end, be prepared to back up any opinion you may have with facts rather than emotions. This is a university where we encourage everyone to openly share their ideas and opinions without penalty or judgment, but learning should always be based on facts and research. It is possible to disagree without being disagreeable.

Netiquette represents proper manners and behaviors online. Netiquette refers to the social expectations and behavior norms for online interactions and communications. In the online learning environment, you should follow common social standards. For additional information, read the [Digital Learning Netiquette](#) page.

Copyright and Fair Use

It is important to understand the issue of intellectual property rights. You may not use the images or thoughts of others for profit or gain without their written permission. The UTSA library has a [Copyright Laws and Public Performance Rights](#) (PPR) page.

UTSA Student Resources

Tech Support

- For technical assistance with Blackboard Learn, visit the [Blackboard Self Help Portal](#). Blackboard provides support 24 hours a day, 7 days a week for UTSA faculty and students by phone, email, chat and live virtual consultations.
- Review the [Minimum Technical Requirements for Online Learning](#) for required technical specifications for learning online.
- Additional technical support can be accessed by visiting the UTS [Tech Café](#) page.
- Chrome is the recommended browser. Issues may happen if using Internet Explorer or Safari, especially with Blackboard Collaborate. In case you are having trouble opening or accessing content, clear the cache and try a different browser. You can run the [Blackboard Browser Checker](#).
- To learn about all of the digital tools available to you as a UTSA student visit the [Digital Tools Resources page](#).

Accommodations for Students with Disabilities

The University of Texas at San Antonio in compliance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act provides “reasonable accommodations” to students with disabilities. Only those students who have officially registered with Student Disability Services and requested accommodations for this course will be eligible for disability accommodations. Instructors at UTSA must be provided an official notification of accommodation through Student Disability Services. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found on the [Student Disability Services](#) webpage or by calling their office at (210) 458-4157. Accommodations are not retroactive.

Additional Assistance

If you have issues that we are unable to resolve together, you can contact your current department chair (see [List of Department Chairs](#)), an associate dean in your college (see [List of UTSA Colleges](#)), or [UTSA’s Equal Opportunity Services & Title IX Office](#).

Academic Support

Supplemental Instruction

Supplemental Instruction (SI) offers student-led study groups using collaborative learning for historically difficult classes. Supported courses and schedules can be found on the [Tomás Rivera Center](#) website. You can call the SI office if you have questions or for more information at (210) 458-7251.

Tutoring Services

Tomás Rivera Center (TRC) may assist in building study skills and tutoring in course content. The TRC has several locations at the Main Campus and is also located at the Downtown Campus. For more information,

visit the [Tutoring Services](#) website or call (210) 458-4694 on the Main Campus and (210) 458-2838 on the Downtown Campus.

Academic Success Coaching

The Tomas Rivera Center (TRC) Academic Success Coaching Program offers one-on-one study skills assistance through Academic Coaching. Students meet by appointment with a professional to develop more effective study strategies and techniques that can be used across courses. Group workshops are also offered each semester to help students defeat common academic challenges. Find out more information by visiting the [Academic Success Coaching](#) website or call (210) 458-4694.

The Writing Center

The Judith G. Gardner Center for Writing Excellence helps the entire UTSA Community with various writing projects, questions, and challenges. Our experienced tutors provide assistance to current undergraduates, graduate students, and faculty/staff members with each step of the writing process. Services are located at the Main Campus in the JPL building (2.01.12D) and at the Downtown Campus in the Frio Street Building (FS 4.432). They also offer online tutoring seven days a week by appointment so that you can chat live with a tutor. Visit [The Writing Center](#)'s website to learn more and to schedule an appointment.

Student Services

Make sure you download the UTSA mobile app to stay connected. Visit the [UTSA Mobile App](#) website to access the app download and learn about app features.

UTSA Social Media Channels

You can follow UTSA departments and organizations on social media. Visit our [Social Media Directory](#) page to find your favorite accounts to follow.

Support for Learning Online

If you haven't had an online course before, [Learning Online Student Resources](#) is a good website to help answer all of your questions.

Student Affairs Comprehensive Student Resource List

UTSA has an extensive amount of resources, tools, programs, and offices. The [Student Affairs Student Resources](#) webpage can help you access campus services and general information on most topics.

Counseling Services

Counseling Services provides confidential, professional services by staff psychologists, social workers, counselors, and psychiatrists to help meet the personal and developmental needs of currently enrolled students. Services include individual brief therapy for personal and educational concerns, couples/relationship counseling, and group therapy on topics such as college adaptation, relationship concerns, sexual orientation, depression, and anxiety. Counseling Services also screens for possible learning disabilities and has limited psychiatric services. Visit the [Counseling Services](#) website or call (210) 458-4140 (Main Campus) or (210) 458-2930 (Downtown Campus).

Student Health Services

UTSA's Student Health Services offers appointments and resources for students related to health education and services. You can find out more about the services offered by visiting the [Student Health Services](#) website.

Student Wellbeing Resources

UTSA is committed to the wellbeing of each member of the campus community and recognizes that numerous factors contribute to overall wellness: physical and mental health, diet and nutrition, physical activity, stress management and self-care, social behaviors and more. In addition to the services listed above, UTSA offers the following:

- [Student Assistance Services \(Student Ombudsperson\)](#)
- [Behavioral Intervention Team \(BIT\)](#)
- [UTSA Police Department](#)
- [Campus Recreation Center](#)
- [Center for Civic Engagement](#)
- [UTSA Campus Climate Team](#)
- [Office of Inclusive Excellence](#)
- [Equal Opportunity Services & Title IX Sexual Harassment and Sexual Misconduct](#)
- [PEACE Center - Prevention, Education, Advocacy, Consultation and Empowerment](#)

The instructor highly encourages you to click on and skim these links, so that you are aware of these services should you ever find you need them. If there are any issues, events, or resources you would like to discuss, please reach out to the instructor. They are happy to listen and help you find the right resources for your situation.

Additional UTSA Policies

Visit this website for a full listing of [Student Policies A-Z Index](#). The link provides information on policies and procedures that apply to all students. It includes residence requirements, policies on grades and the grade point average, credit by examination, adding and dropping courses and withdrawal from UTSA, and scholastic probation and dismissal. The most important policies for you are highlighted below.

Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) is the federal law that protects the privacy of students' education records. This law prohibits Financial Aid, Registrar, Fiscal Services, and many other UTSA departments from releasing any specific student education information without the student's written permission. Parents, guardians, spouses, etc., cannot have access to the student's education records, including account information unless the student has granted authorization through a FERPA/Proxy account in ASAP. Learn more about your student privacy rights by viewing the [Family Educational Rights and Privacy Act](#) page by the Office of the Registrar.

Campus Carry

Pursuant to HOP 9.48, Carrying of Concealed Handguns on Campus, there are specific guidelines provided by the state of Texas in the presence of weapons on campus. The latest information can be accessed at the UTSA [Campus Carry](#) page.

Student Code of Conduct and Scholastic Dishonesty

The Student Code of Conduct is Section B of the Appendices in the Student Information Bulletin. Scholastic Dishonesty is listed in the [Student Code of Conduct](#) (Sec. B of the Appendices) under Sec. 203 for more information. For more information on the Student Code of Conduct, contact the [Student Conduct and Community Standards](#) team.

Transitory/Minor Medical Issues

In situations where a student experiences a transitory/minor medical condition (e.g. broken limb, acute illness, minor surgery) that impacts their ability to access classes or perform tasks within the class over a limited period of time, the student should reach out to the faculty member.

Sexual Harassment and Sexual Misconduct

UTSA is committed to providing an environment free from all forms of discrimination and sexual harassment, including sexual misconduct, sexual assault, domestic violence, dating violence, and stalking. If a student has experienced or experiences any of these incidents, know that UTSA has resources to help.

UTSA faculty have the responsibility to create a learning environment that is safe and free from hostility. State and federal law as well as [UTSA's Faculty Handbook of Operating Procedures \(HOP 9.24\)](#) require that instructors must report incidents of sexual harassment and sexual misconduct they learn about to the Title IX Coordinator or a Deputy Title IX Coordinator. This means that if a student tells their instructor about a situation (including classroom discussions, written work and/or one-on-one meetings) involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, the instructor must report it to the [Equal Opportunity Services & Title IX Office](#). Although the faculty member must report the situation, the student will still have options about how their case will be handled, including whether or not they wish to pursue a formal complaint. The university's goal is to make sure students are aware of the range of options available to them and have access to the resources they need.

If a student wishes to speak to someone confidentially, they can contact any of the following on-campus resources, who are not required to report the incident to the EOS/Title IX Office: (1) Counseling Services at 210-458-4140; (2) Student Health Services at 210-458-4142; or (3) PEACE Center at 210-458-4077.

Campus Safety & Emergency Preparedness

UTSA is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:

- Alerts: Ensure you are signed up for UTSA Alerts through your ASAP.utsa.edu account.
- Emergency Procedures: Read through the information related to emergency preparedness on the [UTSA Alerts](#) page.
- Safety App: Download the LiveSafe App on your phone through the Apple store or Google Play; visit the [LiveSafe App](#) website for details.
- Important Numbers: UTSA Police - Emergency: (210) 458-4911; Non-Emergency: (210) 458-4242

Each one of us play a critical role in making sure ALL ROADRUNNERS are safe, know what to do, and how to stay informed during a campus crisis. Don't be scared, be prepared! #UTSAprepared

Inclusivity Statement

The University of Texas at San Antonio, a Hispanic Serving Institution situated in a global city that has been a crossroads of peoples and cultures for centuries, values diversity and inclusion in all aspects of university life. As an institution expressly founded to advance the education of Mexican Americans and other underserved communities, our university is committed to ending generations of discrimination and inequity. UTSA, a premier public research university, fosters academic excellence through a community of dialogue, discovery, and innovation that embraces the uniqueness of each voice.

The Roadrunner Creed

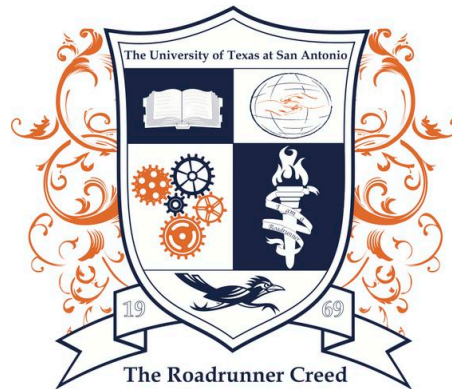


Figure 1. Roadrunner Crest

The University of Texas at San Antonio is a community of scholars, where integrity, excellence, inclusiveness, respect, collaboration, and innovation are fostered.

As a Roadrunner, I will:

- Uphold the highest standards of academic and personal integrity by practicing and expecting fair and ethical conduct;
- Respect and accept individual differences, recognizing the inherent dignity of each person;
- Contribute to campus life and the larger community through my active engagement; and
- Support the fearless exploration of dreams and ideas in the advancement of ingenuity, creativity, and discovery.

Guided by these principles now and forever, I am a Roadrunner!

Changes

The syllabus is subject to change at the discretion of the instructor. Any changes/corrections to the course materials, assignment dates, or other updates will be communicated to the students ahead of time. It is your responsibility to check Blackboard for corrections or updates to the syllabus.

Fully Online Hybrid Course Schedule

Weeks	Topics	Reference
Week 1 (Jan 18 – 22)	L1: Course orientation L2: Python tutorial - introduction	DSS-Ch2(p.15-25)
Week 2 (Jan 25 – 29)	L3: Python tutorial - string, List L4: Python tutorial - tuple, dictionary, operations	PDA-Ch3(p.45-62)
Week 3 (Feb 1 – 5)	L5: Plotting, basic statistics L6: Numpy	DSS-Ch3 PDA-ch8 (p.219-231)
Week 4 (Feb 8 – 12)	L7: Numpy, Quiz 1 review L8: Correlation and statistics	PDA-Ch4 DSS-Ch4
Week 5 (Feb 15 – 19)	Quiz 1 L9: Probability: Bayes theorem	DSS-Ch5,6,7 TS-Ch2,3,4,5,9
Week 6 (Feb 22 – 26)	L10: Probability: Binomial, Hypothesis testing L11: Pandas: Series, Midterm review	PDA-ch5,6,7 DSS-Ch10
Week 7 (March 1 – 5)	Midterm exam L12: Pandas: Data frame	
Week 8 (March 8 - 12)	Spring break	
Week 9 (March 15 – 19)	L13: Pandas: Boxplot L14: Linear regression - Best fit	DSS-ch14,15,16 TS-Ch9.6
Week 10 (March 22 – 26)	L15: Linear regression - Residual analysis L16: Linear regression - Ridge and Lasso regressions	https://scikit-learn.org/stable/modules/generated/sklearn.linear_model.LinearRegression.html
Week 11 (March 29 – April 2)	L17: Logistic regression & Decision tree L18: Decision tree: Best splitting	http://scikit-learn.org/stable/modules/tree.html
Week 12 (April 5 – 9)	L19: Decision tree: Pruning L20: KNN algorithm	http://scikit-learn.org/stable/modules/neighbors.html
Week 13 (April 12 – 16)	L21: KNN algorithm Quiz 2 review	https://scikit-learn.org/stable/modules/clustering.html
Week 14 (April 19 – 23)	L22: Clustering L23: Clustering Quiz 2	https://towardsdatascience.com/k-means-clustering-algorithm-implementation-da0f735ab0f9
Week 15 (April 26 – 30)	L24: Hidden Markov Model L25: Hidden Markov Model	http://www.di.ubi.pt/~jpaulo/competence/tutorials/hmm-tutorial-1.pdf
Week 16 - 17 (May 3 – May 14)	Final review and exams	